IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 84886

FILED BY Calvin Murton Bowman and Carole Bowman

ON March 2, , 20 15

PROTEST

FILED
MAY 12 2015
STATE ENGINEER'S OFFICE

Comes now PAHRUMP UTILITY COMPANY, INC.
Printed or typed name of protestant

whose post office address is 5250 HAFEN RANCH ROAD, PAHRUMP, NV 89061
Street No. or PO Box, City, State and ZIP Code

whose occupation is PUBLIC UTILITY and protests the granting

of Application Number 84886 , filed on MARCH 2, , 20 15

by CALVIN MURTON BOWMAN and CAROLE BOWMAN for the

waters of UNDERGROUND situated in NYE
an underground source or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:

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THEREFORE the Protestant requests that the application be DENIED
Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed [signature]
Agent or protestant

M. KENT HAFEN, PRESIDENT
Printed or typed name, if agent

Address 5250 HAFEN RANCH ROAD
Street No. or PO Box

PAHRUMP, NV 89061
City, State and ZIP Code

(775) 727-1629
Phone Number

hafen@pahrump.com
E-mail

State of Nevada

County of NYE

Subscribed and sworn to before me on MAY 5, 2015

by M. KENT HAFEN

TRUDI BROADHEAD
Notary Public, State of Nevada
Appointment No. 06-107651-14
My Appt. Expires June 10, 2018

[signature]
Signature of Notary Public Required

Notary Stamp or Seal Required

+ $30 FILING FEE MUST ACCOMPANY PROTEST. PROTEST MUST BE FILED IN DUPLICATE.

ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.

Pahrump Utility Company Inc.'s Protest to:

Murton and Carole Bowman's Change Applications, Numbered 84884 and 84886, which request a Change in the Point of Diversion of Water from the Floor to the Manse Fan

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1. Pahrump Utility Company Incorporated (PUCI) is a public utility, regulated by the Public Utilities Commission of Nevada, which provides water service to its customers located in its certificated service area. As a regulated public utility, PUCI "shall render reasonably continuous and adequate service to the public within its service area and in pursuance of the authority granted" under its Certificates of Public Convenience and Necessity issued by the Public Utilities Commission of Nevada.[1] The requested change in the point of diversion is adjacent to the PUCI service area.

2. Applications 84884 (Base Permit #14291, Certificate 6554) and 84886 (Base Permit #21183, Certificate 8242) seek a change in the Point of Diversion of 746.9 AFA of water rights owned by Murton and Carole Bowman. The 746.9 AFA currently have points of diversions in the floor. The existing point of diversion of these permits 14291 and 21183 is a well in the NE corner of the NE ¼ of the SE ¼ of Sec. 6, T. 21 S, R.54 E, M.D.B & M. The proposed point of diversion is to a well in the SE ¼ of the NW ¼ of Sec. 3, T. 21 S, R 54 E, M.D.B & M. This proposed new point of diversion is approximately one half mile north of PUCI's CAAS Well #2, approximately three fourths of a mile north of PUCI's Manse Well #1, and approximately one and three quarters of a mile north of PUCI's Wells # 7, 8 & 9.

3. PUCI is filing protests to Change Applications 84884 and 84886 on the basis that granting the requested change in Point of Diversion would be contrary to Nevada Revised Statute (NRS) 533.370(2) because there is no water available in the source, the proposed change conflicts with existing rights and threatens to prove detrimental to the public interest. Granting this change will have a direct and adverse impact on the existing water rights and their priority dates owned by PUCI and a detrimental impact on PUCI's ability to serve its customer base (the Public).

4. The Pahrump Fan and Manse Fan are separate sub-basins of the Pahrump Valley Hydrographic Basin and have been identified as such by the State Engineer in the past. Attached as **Appendix A** is a copy of the Manse Fan sub-basin study prepared by Lumos & Associates, Inc., previously provided to the State Engineer's Office by PUCI in 2006. This study, as well as other criteria, supports the treatment of the Manse Fan as a separate sub-basin from the Pahrump Fan. The Lumos report establishes that the Manse Fan sub-basin is over-appropriated and that the existing wells are capable of pumping more than the perennial yield of the sub-basin. When this occurred in past years it caused a significant decrease in the water levels of existing wells.

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[1] PUCI provides water service to its customers under Permits/Certificates 65105, 65106, 65725, 68495, 69248, 69249, 69694, 70408, 70873, 71224, 72108, 73527, 73528, 73553, 73839, 73840, 74029, 74030, 74517, 74931, 74932, 74933, 75294, 75295, 75696, 75846, 76106, 77990, 77991, 80281-80294, 80316, 83019, & 83171-83187 issued by the NDWR-SE.

Pahrump Utility Company Inc.'s Protest to:

Murton and Carole Bowman's Change Applications,
Numbered 84884 and 84886, which request a Change in the
Point of Diversion of Water from the Floor to the Manse Fan

5. The Lumos Report established at the time it was prepared that there are 13,120 AFA appropriated in the Manse Fan where there is only an estimated perennial yield of 8,135 AFA. The base water rights of these Change Applications with their current point of diversion were not considered to be in the Manse Fan and were not part of the appropriated water rights for the Manse Fan. A change in the point of diversion of these base rights, resulting in an increase of 746.9 AFA to be pumped from the Manse Fan, will significantly increase the over-appropriation problem in the Manse Fan, not help solve it. An increase in the appropriated rights from the Manse Fan as proposed by these Change Applications should be denied on the grounds their approval would conflict with existing rights and be detrimental to the public interest. See also, Rulings 3253 and 3519 which denied applications to change points of diversion for irrigation rights to the Pahrump fan on the grounds that change applications would constitute an additional appropriation of groundwater from the Pahrump Fan area, thus causing an increase in the overdrafts and thereby adversely affecting existing water rights.

6. To provide service to the developments that have been annexed into its service territory, PUCI has acquired ownership of 13 wells and various water rights dedicated to PUCI as approved the Public Utilities Commission of Nevada. These wells are all to the south and (in some instances) down gradient (west) of the point of diversion proposed by the Change Applications. All of these PUCI wells provide (or are planned to provide) water service to property annexed into PUCI's water utility service territory. A Map of PUCI's wells and backbone water system is attached as **Appendix B**.

7. It is common practice to qualify customers or customer demand in terms of "Equivalent Dwelling Units" (EDUs). EDUs are units of measure that standardize all customer types to the level of demand created by one single family housing unit. In the case of PUCI, a water EDU is equivalent to 300 gallons per day of usage. PUCI has committed and been authorized to provide under its Certificate of Public Convenience and Necessity issued by the Public Utilities Commission of Nevada water service to current and future customers equivalent to 12,197 EDU's. Currently, only 771 of those (6.32%) are connected to the system.

Expected future growth within the service territory beyond those lots that currently have will-serve commitments from PUCI are expected to be from new homes, commercial land and future schools and include developers and landowners that are annexed into the PUCI service territory. PUCI has commitments to provide water service to the annexed properties/developments listed below and shown on **Appendix C**.

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- MFS (Mountain Falls South) Subdivision – 1,159 acres
- Bowman Ranch – 230 acres
- Highway 160 & Manse Rd. – 62 acres
- Hafen Ranch Rd. – 5 acres
- Golden Valley Subdivision – 71 acres

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- Highway 160 & CAAS Rd – 3.9 acres - Commercial
- Indian Road Subdivision – 120 acres
- Hafen Ranch Road – 35 acres
- Artesia – 460 acres,
- Burson Ranch – 170 acres
- Pleasant Valley – 220 acres
- LDS Church – 10 acres – Commercial
- Hafen Elementary School – 80 acres – Commercial
- Floyd Elementary School – 10 acres – Commercial

When it is fully built out, the service territory as defined by annexations and development agreements will be 12,197 water EDUs. PUCI's "water customer base" summary is attached as **Appendix D**.

8. There are no unappropriated water rights in the proposed source of supply, the Manse Fan. Historical records, including records contained in the State Engineer's Office, have shown that increased concentrated pumping in the Manse Fan directly impacts existing wells in the area. When agricultural pumping was high in the 1960's and 1970's, it caused the water level in the Bowman Clock Well[2] to decrease approximately 80 feet. As agricultural pumping has decreased, the water levels in this monitoring well have increased, showing the direct impact of concentrated localized pumping on the Manse Fan. Adding 746.9 AFA to the Manse Fan only exacerbates the over-appropriation problem and would most likely put PUCI in a position of being unable to "continuously and adequately" serve its customer water commitments.

9. It is also important to understand that the water rights PUCI is diverting from its wells are in a number of cases Junior in priority to the base water rights of the subject Change Applications. As set forth above, PUCI's wells are located to the south (and in some instances) down gradient from the point of diversion proposed by these Change Applications. Increased pumping in the location proposed by these Change Applications would impact and conflict with the existing water rights of PUCI. Because the Change Applications propose to increase localized pumping, the proposed changes will be detrimental to the public interest as it will impact PUCI's ability to provide municipal water service to its customer base and the developments annexed into its service territory.

10. Because many of the water rights in PUCI's wells on the Manse Fan are Junior in priority to the base water rights the subject of the Change Applications, PUCI is concerned that it would lose its ability to serve some of its municipal customers if the State Engineer should initiate a curtailment program in the Pahrump Valley. PUCI's higher use of water, for municipal purposes, would be most severely affected and it would be extremely difficult to terminate water service for residential and commercial uses. Notwithstanding Order 1252, the State Engineer

should deny these Change Applications, which constitute new appropriations on the already over-appropriated Manse Fan, because they would subordinate existing municipal water rights in the Manse Fan to irrigation floor water rights that have a non-preferred use in the already over-appropriated Manse Fan area. If Floor water rights with a senior priority date are allowed to move to the Manse Fan area, as is proposed with these Change Applications, that would cause existing Manse Fan water rights holders to lose the right to pump some or all of the full duty of their water rights when there is an inadequate supply of water to serve all water rights holders. This would have a huge detrimental effect on existing water rights holders, including PUCI.

11. Critically, the irrigation water rights in these Change Applications would not be subject to the dedication rates the utility companies and the State Engineer have agreed upon, (approximately 3 to 1 use to dedication), to deal with the existing over appropriation on the Manse Fan.

12. The base rights of Change Applications 84884 and 84886 are supplemental to one another and possibly to the base rights of Change Applications 84883 and 84885, and additional acreage cannot be added to the place of use by these Change Applications.

13. The base rights of Change Applications 84884 and 84886 are currently in good standing with certain extensions. If the base rights are not in good standing at the time a decision is made on these Change Applications, the Change Applications should be denied.

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Appendix A

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DELINEATION OF THE
MANSE FAN AND
ESTIMATED PERENNIAL YIELD,
PAHRUMP BASIN, NEVADA

Prepared For:

Pahrump Utility Company, Inc.
1321 S. Hwy 160; Suite One
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Prepared By:

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September 26, 2006
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DELINEATION OF THE
MANSE FAN AND
ESTIMATED PERENNIAL YIELD,
PAHRUMP BASIN, NEVADA

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SECTION 1: BACKGROUND AND OBJECTIVES

1.1 BACKGROUND

Pahrump Utility Company, Inc. (PUCI) is a water and wastewater utility company owned and operated by HRD Inc. The privately owned utility company, located five miles south-east of Pahrump, Nevada, was initially started to accommodate a residential subdivision developed by the Hafen Family that required a wastewater treatment facility. The Hafen Family continued to develop subdivisions which resulted in the PUCI expanding the utility to include a water system.

The State Engineer has issued several restrictions for portions of the Pahrump Basin (Basin 162), specific to alluvial fan areas to help reduce potential over-drafting from aquifer systems that are associated with valley-fill deposits. Consequentially, the Nevada Division of Water Resources (NDWR) has delineated that portion of the basin where the alluvial fan makes a transition to what is referred to as the basin floor.

The source of groundwater for PUCI's water system comes from the alluvial fan (known as fan water rights) on the eastern side of the Pahrump Basin. Within this alluvial fan is an unofficial sub-fan locally known as the Manse Fan. The water rights, owned by PUCI, are predominantly located on the Manse Fan and have priority dates extending back to the 1920's. The portion of the Manse Fan that is the subject of this report (the study area) is generally described as property contained in Township 21S, Range 54E, Sections: 01, 02, 03, 04, 09, 10, 11, 12, 15 and 16.

The present concern by PUCI is the transfer of several hundred acre-feet of water rights onto the study area to support a large proposed Planned Unit Development (PUD). The duty required to handle the large development alone would require 4 to 8 new production wells. PUCI would like to know if additional groundwater production from this portion of the Manse Fan might have a negative impact to the aquifer system, directly affecting their ability to service the customers they have made legal commitment to. PUCI has procured this hydrogeology study to investigate the perennial yield (safe yield) from the aquifers within the Manse Fan and determine if the existing and future transfer of water rights to this area may overdraft the aquifer(s) and impact PUCI's existing production wells.

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1.2 OBJECTIVE

The primary objectives of this study are to:

1. Delineate the total area identified as the Manse Fan in order to estimate the number of acre-feet of water annually recharged to the Manse Fan as a function of the total perennial yield for the basin.

2. Determine the number of acre-feet of groundwater appropriated on the Manse Fan.

3. Evaluate historical pumping records during the 1960's and 1970's when groundwater production was at its highest due to agricultural water use practices.

4. Evaluate historical pumping records within the study area from 1985 through 2004 when groundwater levels appear to first stabilize and then recover as a response to changes in water use.

5. Research static groundwater level changes and trends as recorded by the United States Geological Survey (USGS), for monitoring wells on the Manse Fan, from 1944 through 2004, to determine the effects of groundwater withdrawals from the Manse Fan Aquifer system.

6. Determine what affects the transfer of additional water rights from other areas of the alluvial fan to the Manse Fan area will have on the Manse Fan aquifer system.

SECTION 2: GEOLOGIC SETTING

The Pahrump Valley Hydrographic Basin (162) is located in the southern portion of the Basin and Range physiographic Province. The basin includes about 1,050 square miles in Clark and Nye Counties, southern Nevada, and Inyo and San Bernardino Counties, southeastern California (Malmberg, 1967). The valley is bounded on the northeast and east by the Spring Mountains, and by the topographically lower Montgomery Mountains, the Nopah Range, and the Kingston Range on the northwest, west and southwest, respectively. The Pahrump Valley is a closed alluvial basin with no surface outflows. All of the mountain ranges surrounding the basin are composed of Paleozoic and Late Proterozoic carbonate and clastic rocks (Sweetkind and others, 2003).

Large alluvial fans characterize the northeastern side of the basin. The two most prominent of these are the Pahrump Fan to the north and the Manse Fan to the south. The Spring Mountain Range remains the dominant topographic feature of the basin and the source area for virtually all of the water recharge to the Manse Fan and the Pahrump valley (Malmberg, 1967, Harrill, 1986). Typical for valleys of the region, the sedimentary deposits of the alluvial fans and valley floors are generally thick. The Manse alluvial fan is composed of what may be kilometers-deep Tertiary alluvium or basin filling sedimentary rocks (Sweetkind and others, 2003).

The primary aquifer systems that support agriculture and public water systems comes from the groundwater aquifer systems in the basin-fill formations. Geologic maps show that the uppermost portion of these basin fill deposits, or those deposits closest to the surface, where production wells penetrate, consist largely of unconsolidated coarse-grained alluvial materials.

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3.2 PERENNIAL YIELD

The State Engineer reports that the area encompassing the Pahrump Basin (Hydrographic Basin 162) is approximately 504,960 acres and has an allocated annual perennial yield of 19,000 AFA (Acre-Feet Annually). Perennial yield is defined as the amount of usable water of a ground water reservoir that can be withdrawn and consumed economically each year for an indefinite period of time. It cannot exceed the sum of the natural recharge, the artificial or induced recharge, and the incidental recharge without causing depletion of the groundwater reservoir. Based on total acreages, the regional recharge for the Manse Fan and associated study area has been calculated as a percentage of the perennial yield for the entire basin, thus yielding an estimate for the perennial yield of the Manse Fan.

Given:

Manse Fan Acreage = 156,719 acres
Total Pahrump Basin Acreage = 504,960 acres
Pahrump Basin Perennial Yield = 19,000 AFA

Then:

The perennial yield for the Manse Fan area may be approximated as:

(156,719 ac / 504,960 ac) (19,000 AFA) = 5,897AFA

3.3 APPROPRIATED WATER RIGHTS

Appropriated water rights identify the quantity of water from wells, streams, rivers, reservoirs, or other sources reserved for a specific use and place of use under state water-right laws, statutes, or regulations. A review and analysis of the NDWR water rights database was conducted for the common area shared by both the Manse Fan delineation and the NDWR alluvial fan delineation. The analysis revealed that the majority of appropriated water rights for the Manse Fan area as a whole occur within the NDWR delineated fan area. More specifically, the majority of water rights occur in the study area that is generally described as the property contained in Township 21S, Range 54E, sections: 01, 02, 03, 04, 09, 10,11, 12, 15 and 16.

The study area had historically supported extensive agricultural water use (i.e. irrigated cotton). In recent times, the "Manner of Use" for many of these water rights have been converted from irrigation to quasi-municipal uses as economic trends and population growth occurred. "Points of Diversion" for these water rights tended to remain on the NDWR delineated alluvial fan area. The complete list of sections that describe the area common to both delineations and used to identify the total appropriated, supplemental adjusted water rights for the area are found in Appendix: A (Section 8.0).

Records indicate active water rights for this area as Certificated, Decreed, Vested or Permitted, currently total approximately 13,120 AFA (Section 8.0). Noteworthy also is an additional 516 AFA of water rights for a point of diversion that is less than 1400 feet to the north of the delineation in section 30, Township 20S, Range 54E.

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SECTION 4: AQUIFER RESPONSE ANALYSIS

A second means of estimating the perennial yield was quantified by comparing field-measured rates of groundwater withdrawal (pumpage) to monitored static groundwater levels (SWL). The hydrologic budget, also referred to as the water balance, is determined through analysis of documented gains and losses of groundwater to the aquifer system within the alluvial fan over time. The perennial yield for the aquifer system is then shown by identifying when aquifer equilibrium or balance between the gain and loss of groundwater within the water budget, reveals no net change in groundwater storage over time.

Extensive data for both pumpage and monitored SWL (feet below the surface of the ground) are available for the study area through NDWR and USGS databases. This groundwater system has several years of hydrologic records to support the credibility of trend determinations such as those values for perennial yield. The following discussion also considers data that reflects trends of depletion and surplus.

4.1 GROUNDWATER DATA

The USGS has maintained a monitoring program through the National Water Information System (NWIS) that, for the study area, dates back to the early 1940's. The NWIS database contains information for 16 sites within T21S, R54E. Four NWIS well sites that are within the study area have extensive groundwater level data (Section 8.0). The USGS site with the largest and longest running data set is a well site centrally located in the wellfield and locally referred to as the Bowman well (USGS site number: 360836115531701 162 S21 E54 10AAC). The well is believed to be cased to 472 feet and has a total depth of 800 feet. Initial readings taken in the 1940s show the groundwater at a depth of less than 30-feet below ground level (bgl). Records beginning in October of 1944, and continuing through to July of 2004, include 2,054 individual readings (Figures 3).

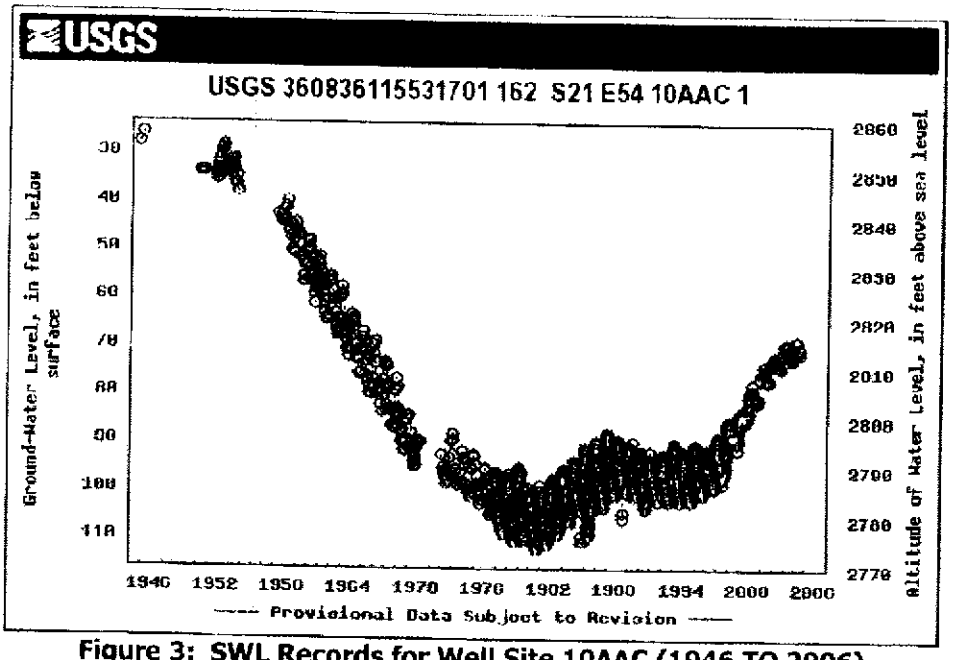

Figure 3: SWL Records for Well Site 10AAC (1946 TO 2006)

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NDWR records for the study area document the annual pumpage or groundwater withdrawal from the aquifer system from the 1960s to 2005. Water use reports for two time frames, 1962 through 1968 and 1970 through 1978, were analyzed to determine the annual average acre-feet pumped in the study area. The water use reports for this period reflect a use dominated by irrigated agriculture. The average groundwater production for the 7-year period from 1962 through 1968 was 10,812 AFA. The average groundwater production for the 9-year period from 1970 through 1978 increased to 12,472 AFA (Section 8.0). The average use therefore was approximately 11,746 AFA for the Manse Fan reflecting peak years of water production.

Based on the central location of the USGS monitoring well within the study area, the SWL trends for this site are indicative of those for the wellfield (Figure 2). During the same period of time, there is a significant decrease in the SWL of over 70 feet, as documented from the monitoring well data (1960 through 1978). Water use in the area reached its height and then slows, by the early 1980s, when groundwater levels declined to over 110 feet below the ground surface. The steady decline in the SWL that precedes 1980 is illustrated by the USGS data from the monitoring well records for this period (Figure 4).

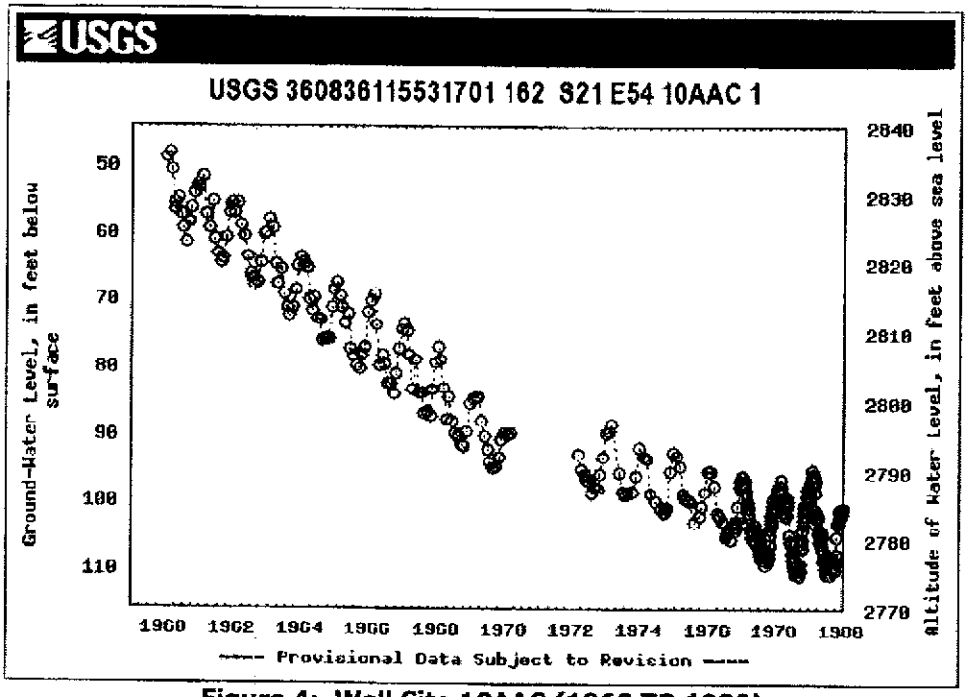

Figure 4: Well Site 10AAC (1960 TO 1980)

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4.2 HYDROLOGIC BUDGET ANALYSIS

NDWR records for annual groundwater withdrawal within the study area were also analyzed for the period from 1985 through 2004. This data reflects the changing trend of water use from irrigated agriculture to those associated with urban development, such as an increase in the number of municipal water systems (Section 8.0). As seen from the USGS records for SWL at monitoring well 10AAC, groundwater levels slightly recovered following these initial changes in water use in the early 1980's (Figure 3). The USGS records are in both SWL units (feet) and altitude or elevation (feet above sea level). The SWL may be attained by subtracting the recorded elevation from the elevation of the wellhead at the surface or 2885 feet.

Both sets of recorded data for the study area, from the USGS monitoring well and NDWR pumpage records, show a leveling trend for the 13-year period from 1985 through 1997. The SWL at the USGS monitoring site leveled off at an approximate groundwater elevation of 2794 feet above sea level. Recorded NDWR pumpage levels for the same 13-year period averaged 8,135 AFA from 1985 to 1997 (Section 8.0). This stability in the resulting storage level of the study area's aquifer system, sustained over a significant period of time (13 years), strongly suggests a possible safe yield for the system of approximately that equal to the average level of groundwater withdrawal or 8,135 AFA.

With a slow decline in the rate of groundwater withdrawals from 1998 to 2004, the SWL at the monitoring well again responded with a SWL recovery (Figure 5). The aquifer system has currently recovered to the extent that natural artesian flow has resumed at the Manse Spring, approximately a mile to the northwest of USGS monitoring well 10AAC (Verbal communication, Tim Hafen).

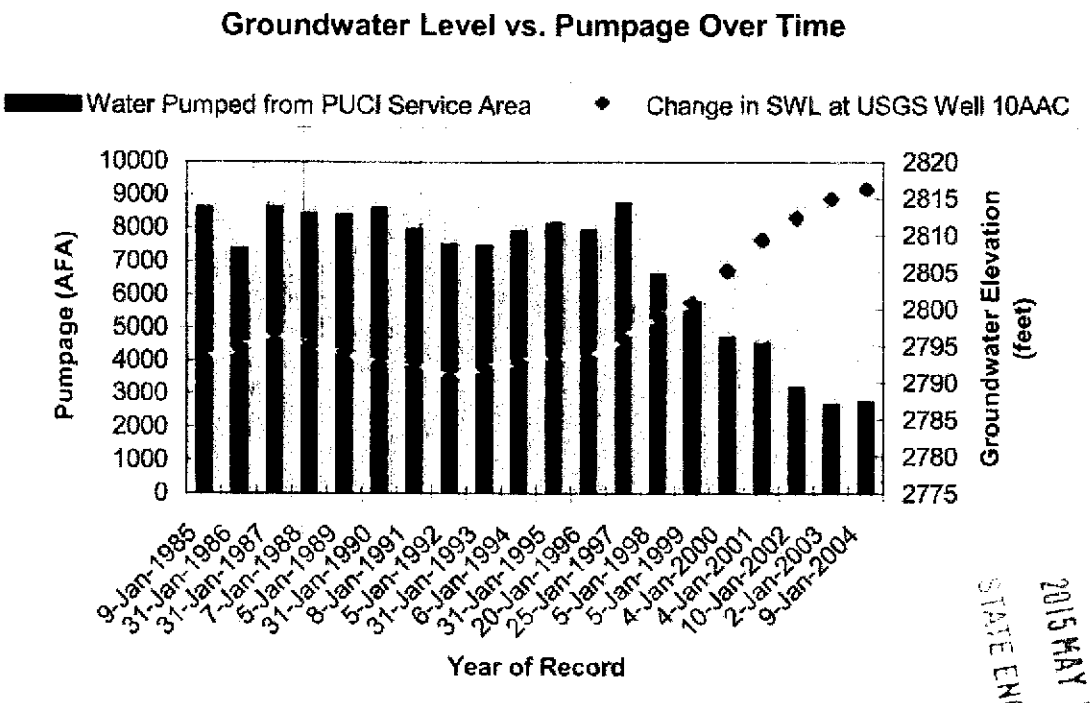

Figure 5: Groundwater Budget at USGS Monitoring Well 10AAC
(SWL level equals surface elevation of 2885 feet minus groundwater elevation)

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SECTION 5: CONCLUSIONS

The Nevada Division of Water Resources (NDWR) has delineated the alluvial fan located on the eastern side of the Pahrump Valley Hydrographic Basin (Basin 162). A sub-delineation of the alluvial fan was conducted to determine the study area referred to as the Manse Fan. This area was determined to encompass 156,719 acres or 245 square miles. Using the fractural percentage of this area to the total area of Basin 162 (504,960 acres), the study area (Manse Fan) represents approximately 31% of the total basin. The perennial yield of the Basin 162, as determine by the NDWR, is 19,000 acre-feet annually. Based on the data, 31% of the perennial yield for the Manse Fan area equates to approximately 5,897 acre-feet.

Historical pumping records for the study area (Manse Fan) during the highest water production years from 1962 through 1979 averaged 11,642 acre-feet annually. Groundwater static water levels collected by the USGS, during this same period, indicate a depletion of groundwater. Groundwater withdrawal rates and static groundwater levels were also analyzed for a period of relative water use stabilizing from 1985 to 1997, to determine the hydrologic budget for the area. Through a trend analysis for this period, an approximate perennial yield for the Manse Fan was shown to be 8,135 AFA. The data suggests that the actual perennial yield for the Manse Fan can be conservatively targeted between the delineated estimate of 5,897 AFA and the estimated hydrologic budget value of 8,145 AFA.

Presently, 13,120 AFA of groundwater has been appropriated from the Manse Fan area (supplementally adjusted). The data evaluated in this report suggests that the present appropriated water rights associated with the Manse Fan area exceed the sub-basin's perennial or safe yield. Based on the analysis, the transfer of additional water rights to the Manse Fan area will create a trend of over-drafting of the sub-basin aquifers within the study area.

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SECTION 6: LIMITATIONS OF INVESTIGATIONS

This investigation is being performed using the degree of care and skill ordinarily exercised on similar circumstances, by experienced environmental professionals practicing in this or similar locations. No warranty, expressed or implied, is made as to the conclusions and professional advice included in the referenced reports.

The interpretations and conclusion contained in the referenced report are based on our review of the referenced materials and our field investigation described herein. As in most projects, conditions revealed by additional subsurface investigation may be at variance with preliminary findings. If this occurs, the experienced professional must evaluate the changed conditions and design must be adjusted as required or alternate designs and plans recommended.

The findings of this report are valid as of the present date. However, changes in the conditions of the property can and do occur with the passage of time, whether they be due to natural processes or the work of people on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of the referenced report may be invalidated wholly or partially by changes outside of our control. Therefore, the referenced report is subject to review and revision as changed conditions are identified.

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SECTION 7: REFERENCES

Harrill, James R., 1986, "Ground-water Storage Depletion In Pahrump Valley, Nevada – California, 1962 – 75"; U.S. Geographical Survey Water – Supply Paper 2279, p. 3.

Malmberg, Glenn T., 1967, "Hydrology of the Valley-Fill and Carbonate-Rock Reservoirs, Pahrump Valley Nevada-California"; U.S. Geographical Survey Water–Supply Paper 1832, p. 3.

Sweetkind, Donald S., Taylor, E., Putnam, H., 2003, "Stratigraphic inferences derived from borehole data of Tertiary basin-filling rocks of the Pahrump Valley basin, Nevada and California"; U.S. Geographical Survey open-File Report 2003-03-051, p.4

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SECTION 8: APPENDICES

Appendix A: Manse Fan Appropriated Water Rights as of September 2006

Appendix B: USGS Monitoring Well Site Records for the Study Area

Appendix C: Manse Fan Water Use Analysis 1962 through 1978

Appendix D: Manse Fan Groundwater Pumpage Inventory 1985 through 2005

Appendix E: NDWR Code Definitions

Appendix F: PLATE I – SITE PLAN
DESERT UTILITIES, INC. PROPOSED WATER DIVERSION RELOCATIONS

PLATE II – HYDROLOGIC SETTING
DESERT UTILITIES, INC. PROPOSED WATER DIVERSION RELOCATIONS

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Appendix A:

Manse Fan Appropriated Water Rights as of September 2006

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Appendix A:
Manse Fan Appropriated Water Rights
As of September, 2006
Prepared by Lumos and Associates

Database search and input criteria for the spreadsheet that follows (next page):

- Data was retrieved for sections that are in both, the Manse Fan delineation and NDWR alluvial fan delineation.
- Spreadsheet is sorted by ascending permit numbers
- Basin: 162
- Application Status: CER,PER,VST,DEC
- Use: All classifications
- Unit conversions: conducted for MGD to AFA
- Permits with points of diversion within the listed sections but outside the delineations were omitted.

Database query was for the following areas

Township,20S, Range 54E:
sections: 14,15,16,21,22,24,25,26,27,28,29,30,32,33,34,35,36
19 records

Township,20S, Range 55E:
sections: 16,17,19,20,21,26,27,28,29,30,31,32,33,34,35
no records found

Township,21S, Range 54E:
sections: 01,02,03,04,09,10,11,12,13,14,15,16,20,21,22,23,24,25,26,27,28,29,32,33,34,35,36
164 records

Township,21S, Range 55E:
sections: 03,04,05,06,07,08,09,10,11,14,15,16,17,18,19,20,21,22,26,27,28,29,30,31,32,33,34,35
no records found

Township,22S, Range 54E:
sections: 01,02,03,04,05,10,11,12,14,15
6 records

Township,22S, Range 55E:
sections: 03,04,05,06,07,08,09,10,16,17,18
no records found

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Appendix A: Manse Fan Appropiated Water Rights
as of September, 2006
prepared by Lumos and Associates, Inc.

App	Cert	File Date	Status	Sour	QQ	Qtr	Sec	Twn	Rng	Type	Sup	Ann Duty	Units	Owner of Record
10571	24323		CAN	UG										
10571	2987	10/26/1940	CER	UG	SE	NW	3	21S	54E	IRR		318.705	AFA	CALVIN MURTON BOWMAN
10571	19031		CER	UG										
10571	70652		PER	UG										
11678	3772	8/24/1946	CER	UG	SW	NW	34	21S	54E	STK		2.19	AFA	ANDERSON, IMOGENE
13669	4621	4/2/1951	CER	UG	SE	SE	9	21S	54E	IRR		100	AFA	BOWMAN, PERRY L. & NORMA
13669	73839		RFA	UG										
13669	72968		WDR	UG										
13875	4363	10/11/1951	CER	UG	SE	SE	9	21S	54E	IRR		800	AFS	ADAVEN MANAGEMENT, INC.
13875	72388		RFA	UG										
13875	73840		RFA	UG										
13875	72969		WDR	UG										
19030	70993		CAN	UG										
19030	6768	7/18/1960	CER	UG	SW	NE	3	21S	54E	IRR		185	AFA	CHI OF NEVADA LLC
19030	66920		PER	UG										
19030	68734		PER	UG										
19030	68817		PER	UG										
19030	68908		PER	UG										
19030	69222		PER	UG										
19030	69223		PER	UG										
19030	71362		PER	UG										
19031	6866	7/18/1960	CER	UG	SE	NW	3	21S	54E	IRR	Y	303.945	AFA	ADAVEN MANAGEMENT, INC.
19031	70651		PER	UG							Y			
19031	71871		RFA	UG							Y			
19334	6845	11/15/1960	CER	SPR	SW	NW	3	21S	54E	IRR		342.05	AFA	BOWMAN, MURTON
19335	6817	10/15/1960	CER	SPR	SW	NW	3	21S	54E	IRR		433.5	AFA	BOWMAN, MELVIN
22735	74583		APP	UG										
22735	6938	8/25/1965	CER	UG	SW	SE	3	21S	54E	IRR		1885.68	AFA	ADAVEN MANAGEMENT, INC.
22735	59414		CER	UG										
22735	58501T		EXP	UG										
22735	63964		PER	UG										
22735	72389		RFA	UG										

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App	Cert	File Date	Status	Sour	QQ	Qtr	Sec	Twn	Rng	Type	Sup	Ann Duty	Units	Owner of Record
22735	72970		WDR	UG										
24773	52367		ABR	UG										
24773	65460		ABR	UG										
24773	7032	11/21/1968	CER	UG	NE	SW	3	21S	54E	IRR		5	AFA	CENTRAL NEVADA UTILITIES COMPANY
24773	58626		PER	UG										
26079	9010	4/26/1971	CER	UG	NW	SE	29	20S	54E	COM		26.98	AFA	BROWN NORMAN L.
26510	9157	1/31/1972	CER	UG	NE	NE	9	21S	54E	QM		5.94	AFA	HAFEN, M. KENT
29941	9947	1/26/1976	CER	UG	SE	NE	16	21S	54E	QM		4.65	AFA	HAFEN, M. KENT
41157	13213	4/23/1980	CER	UG	SE	SE	16	21S	54E	IRR	Y	34.22	AFA	ADAVEN MANAGEMENT, INC.
41157	65106		PER	UG							Y			
41157	69249		PER	UG							Y			
41157	72050		PER	UG							Y			
41157	73075		PER	UG							Y			
41158	13214	4/23/1980	CER	UG	SE	SE	16	21S	54E	IRR	Y	4.86	AFA	ADAVEN MANAGEMENT, INC.
41158	72049		PER	UG							Y			
41158	73076		PER	UG							Y			
41159	13215	4/23/1980	CER	UG	NE	SE	16	21S	54E	IRR	Y	88.33	AFA	ADAVEN MANAGEMENT, INC.
41159	65105		PER	UG							Y			
41159	69248		PER	UG							Y			
41159	69694		PER	UG							Y			
41159	72048		PER	UG							Y			
41159	73077		PER	UG							Y			
41159	41159R01		RLP	UG							Y			
41160	13216	4/23/1980	CER	UG	NE	SE	16	21S	54E	IRR	Y	10.11	AFA	ADAVEN MAMAGEMENT
41160	72047		PER	UG							Y			
41160	73078		PER	UG							Y			
41161	13217	4/23/1980	CER	UG	SE	SE	16	21S	54E	IRR	Y	20.87	AFA	ADAVEN MANAGEMENT
41161	68495		PER	UG							Y			
41161	72046		PER	UG							Y			
41161	73079		PER	UG							Y			
41162	13218	4/23/1980	CER	UG	SE	NE	16	21S	54E	IRR	Y	71.94	AFA	HAFEN FAMILY LIMITED PARTNERSHIP
41162	60911		CER	UG							Y			
41162	61125T		EXP	UG							Y			
41162	70408		PER	UG							Y			
41162	72945		PER	UG							Y			
41162	73080		PER	UG							Y			

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App	Cert	File Date	Status	Sour	QQ	Qu	Sec	Twn	Rng	Type	Sup	Ann Duty	Units	Owner of Record
41162	41162R01		RLP	UG							Y			
41162	57076		WDR	UG							Y			
41163	13219	4/23/1980	CER	UG	SE	NE	16	21S	54E	IRR	Y	160.82	AFA	HAFEN FAMILY LIMITED PARTNERSHIP
41163	72044		PER	UG							Y			
41163	73081		PER	UG							Y			
41167	13221	4/23/1980	CER	UG	SW	SE	3	21S	54E	IRR	Y	184.24	AFA	HAFEN FAMILY LIMITED PARTNERSHIP
41167	70873		PER	UG							Y			
41167	71224		PER	UG							Y			
41167	72042		PER	UG							Y			
41167	73083		PER	UG							Y			
41167	72971		WDR	UG							Y			
41170	13223	4/23/1980	CER	UG	SW	SE	3	21S	54E	IRR	Y	3.31	AFA	HAFEN FAMILY LIMITED PARTNERSHIP
41170	72040		PER	UG							Y			
41170	73085		PER	UG							Y			
45574	13196	4/22/1982	CER	UG	SW	SE	16	21S	54E	QM		3.2	AFA	SANTOVITO, JEANE
46235	12753	10/19/1982	CER	UG	SE	NW	29	21S	54E	QM		2.25	AFA	HOFFMAN, VICTOR
46826		4/20/1983	PER	UG	SE	NW	3	21S	54E	MUN	Y	272.8	AFA	UTILITIES INC OF CENTRAL NEVADA
46827		4/20/1983	PER	UG	SE	NW	3	21S	54E	MUN	Y	862.2	AFA	UTILITIES INC OF CENTRAL NEVADA
48221	14395	7/18/1984	CER	UG	NW	NE	12	21S	54E	IRR		7	AFA	BRADSHAW, J. K. & GARDETTO, J. F.
48221	61363		CER	UG										
48221	69955		PER	UG										
48221	71199		PER	UG										
49290	13964	8/21/1985	CER	UG	NE	SE	29	20S	54E	IND	Y	5	AFA	WULFENSTEIN, RAY
49456	56800		CAN	UG										
49456	15113	10/18/1985	CER	UG	SW	SW	28	20S	54E	IND		1	AFA	DAFFER, DANIEL I.
57129		2/3/1992	PER	UG	NE	SW	3	21S	54E	COM		2.02	AFA	ANTHONY M. MCKOY TRUST AE 101
58982	15766	7/1/1993	CER	UG	NE	SE	29	20S	54E	IND	Y	12.3	AFA	WULFENSTEIN TRUST R-501
58983	15767	7/1/1993	CER	UG	NE	SE	29	20S	54E	IND	Y	42.3	AFA	WULFENSTEIN TRUST R-501
59414	16497	12/1/1993	CER	UG	NE	SE	9	21S	54E	IRR		226.05	AFA	BOWMAN, DEBRA J.
59414	64887		PER	UG										
59414	72972		WDR	UG										
60911	15181	2/9/1995	CER	UG	SW	NE	16	21S	54E	IRR		10.31	AFA	TIM HAFEN RANCHES, INC.
63964		3/18/1998	PER	UG	SW	SE	3	21S	54E	COM		4	AFA	GOFF FAMILY TRUST U/A/D 2/3/98
64244		6/22/1998	PER	UG	NW	NW	33	20S	54E	COM		5.04	AFA	WULFENSTEIN, RAY
64244	70845		PER	UG										
64245		6/22/1998	PER	UG	NE	SE	33	20S	54E	COM	Y	20	AFA	WULFENSTEIN, RAY

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App	Cert	File Date	Status	Sour	QQ	Qtr	Sec	Twn	Rng	Type	Sup	Ann Duty	Units	Owner of Record
64361		7/31/1998	PER	UG	NE	SE	33	20S	54E	COM	Y	9.96	AFA	WULFENSTEIN, RAY
64361	71008		PER	UG							Y			
64551		10/23/1998	PER	UG	NW	NW	10	21S	54E	IRR		10	AFA	GRAMMER, JAMES ALLEN
64887		3/4/1999	PER	UG	NE	SW	10	21S	54E	COM		2	AFA	BOWMAN,MARK E. & DEBRA J.
65105		5/5/1999	PER	UG	NE	SE	16	21S	54E	MUN	Y	83.83	AFA	PAHRUMP UTILITY COMPANY, INC.
65106		5/5/1999	PER	UG	SE	SE	16	21S	54E	MUN	Y	126.73	AFA	HHH INVESTMENTS, LLC
65734		12/17/1999	PER	UG	SW	NE	3	21S	54E	IRR		155	AFA	GOFF FAMILY TRUST DATED 2/3/98
65744		12/22/1999	PER	UG	NW	NW	3	21S	54E	COM		1	AFA	D & E JOHNSON TRUST 5/12/98
66302	74568		APP	UG										
66302		4/21/2000	PER	UG	SW	SE	3	21S	54E	IRR		19.15	AFA	HAFEN, JANE M.
66920		11/3/2000	PER	UG	NW	SW	3	21S	54E	IRR		14.14	AFA	TRIPLE TECH, LLC
66924		11/6/2000	PER	UG	SW	NW	15	21S	54E	QM		4.5	AFA	LICATTA, DAVID
68495		2/15/2002	PER	UG	SE	SE	16	21S	54E	MUN		37.44	AFA	HHH INVESTMENTS, LLC
68801		5/10/2002	PER	UG	NW	NE	3	21S	54E	IND	Y	1	AFA	WULFENSTEIN TRUST R-501
68817	74721		APP	UG										
68817		5/15/2002	PER	UG	SW	NE	3	21S	54E	IRR		17.82	AFA	CHRISTENSEN, HANS
68817	73981		RFA	UG										
68908		6/20/2002	PER	UG	SW	NE	3	21S	54E	QM	Y	299.05	AFA	CHRISTENSEN, EDGAR LYLE
69222		10/7/2002	PER	UG	NW	NE	3	21S	54E	COM	Y	50	AFA	WULFENSTEIN TRUST R501 DATED 4/28/9
69248		10/16/2002	PER	UG	NE	SE	16	21S	54E	MUN	Y	67.464	AFA	HAFEN RANCH ESTATES
69249		10/16/2002	PER	UG	SE	SE	16	21S	54E	MUN	Y	134.66	AFA	HAFEN RANCH ESTATES
69372		12/6/2002	PER	UG	SW	NW	29	21S	54E	COM		0.3	AFA	PET CREMATION SERVICES
69694		2/27/2003	PER	UG	NE	SE	16	21S	54E	MUN	Y	22.83	AFA	HAFEN RANCH ESTATES
70269		7/28/2003	PER	UG	SW	NE	3	21S	54E	COM		10	AFA	NEVADA STAR INC.
70325		8/19/2003	PER	UG	NE	SW	3	21S	54E	QM	Y	1395.39	AFA	ADAVEN MANAGEMENT INC.
70325	72390		RFA	UG							Y			
70326		8/19/2003	PER	UG	NE	SW	3	21S	54E	QM	Y	46.98	AFA	MOUNTAIN FALLS ACQUISITION CORP.
70327		8/19/2003	PER	UG	NE	SW	3	21S	54E	QM	Y	311.826	AFA	MOUNTAIN FALLS, LLC
70408		9/15/2003	PER	UG	SE	NE	16	21S	54E	MUN	Y	130.8	AFA	HHH INVESTMENTS, LLC
70651		11/19/2003	PER	UG	SE	NW	3	21S	54E	QM	Y	659.055	AFA	MOUNTAIN FALLS, LLC
70652		11/19/2003	PER	UG	SE	NW	3	21S	54E	QM	Y	281.515	AFA	MOUNTAIN FALLS, LLC
70873		2/12/2004	PER	UG	SE	NE	16	21S	54E	MUN	Y	240.38	AFA	HHH INVESTMENTS, LLC
70945		3/15/2004	PER	UG	NE	SE	29	20S	54E	COM	Y	105	AFA	WULFENSTEIN, RAY
71008		4/5/2004	PER	UG	NW	NE	3	21S	54E	COM	Y	10	AFA	WULFENSTEIN, RAY
71224		5/14/2004	PER	UG	NE	SE	16	21S	54E	MUN	Y	139.49	AFA	HHH INVESTMENTS, LLC
71362		6/22/2004	PER	UG	SW	NE	3	21S	54E	QM	Y	779.99	AFA	MOUNTAIN FALLS, LLC

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72040		12/15/2004	PER	UG	SW	SE	3	21S	54E	QM	Y	5.44	AFA	ADAVEN MANAGEMENT, INC.
72042		12/15/2004	PER	UG	SW	SE	3	21S	54E	QM	Y	288.41	AFA	ADAVEN MANAGEMENT, INC.
72044		12/15/2004	PER	UG	SE	NE	16	21S	54E	QM	Y	253.78	AFA	ADAVEN MANAGEMENT, INC.
72045		12/15/2004	PER	UG	SE	NE	16	21S	54E	QM	Y	118.11	AFA	ADAVEN MANAGEMENT, INC.
72046		12/15/2004	PER	UG	SE	SE	16	21S	54E	QM	Y	34.26	AFA	ADAVEN MANAGEMENT, INC.
72047		12/15/2004	PER	UG	NE	SE	16	21S	54E	QM	Y	16.59	AFA	ADAVEN MANAGEMENT, INC.
72048		12/15/2004	PER	UG	NE	SE	16	21S	54E	QM	Y	145.02	AFA	ADAVEN MANAGEMENT, INC.
72049		12/15/2004	PER	UG	SE	SE	16	21S	54E	QM	Y	7.97	AFA	ADAVEN MANAGEMENT, INC.
72050		12/15/2004	PER	UG	SE	SE	16	21S	54E	QM	Y	56.76	AFA	ADAVEN MANAGEMENT, INC.
72953		6/20/2005	PER	UG	SW	NE	33	20S	54E	COM	Y	5	AFA	SPRING MOUNTAIN RACEWAY, LLC
72954		6/20/2005	PER	UG	SW	NE	33	20S	54E	COM	Y	2.1	AFA	SPRING MOUNTAIN RACEWAY, LLC
72955		6/20/2005	PER	UG	SW	NE	33	20S	54E	COM	Y	3.15	AFA	SPRING MOUNTAIN RACEWAY, LLC
72956		6/20/2005	PER	UG	SW	NE	33	20S	54E	COM	Y	0.5	AFA	SPRING MOUNTAIN RACEWAY, LLC
73075		7/21/2005	PER	UG	SE	SE	16	21S	54E	QM	Y	47.89	AFA	ADAVEN MANAGEMENT, INC.
73076		7/21/2005	PER	UG	SE	SE	16	21S	54E	QM	Y	6.8	AFA	ADAVEN MANAGEMENT, INC.
73077		7/21/2005	PER	UG	NE	SE	16	21S	54E	QM	Y	123.16	AFA	ADAVEN MANAGEMENT, INC.
73078		7/21/2005	PER	UG	NE	SE	16	21S	54E	QM	Y	14.14	AFA	ADAVEN MANAGEMENT, INC.
73079		7/21/2005	PER	UG	SE	SE	16	21S	54E	QM	Y	29.21	AFA	ADAVEN MANAGEMENT, INC.
73080		7/21/2005	PER	UG	SE	NE	16	21S	54E	QM	Y	100.71	AFA	ADAVEN MANAGEMENT, INC.
73081		7/21/2005	PER	UG	SE	NE	16	21S	54E	QM	Y	216.38	AFA	ADAVEN MANAGEMENT, INC.
73083		7/21/2005	PER	UG	SW	SE	3	21S	54E	QM	Y	245.91	AFA	ADAVEN MANAGEMENT, INC.
73085		7/21/2005	PER	UG	SW	SE	3	21S	54E	QM	Y	4.63	AFA	ADAVEN MANAGEMENT, INC.
V02287	19334		CER	SPR										
V02287	19335		CER	SPR										
V02287		1/6/1937	DEC	SPR	SW	NW	3	21S	54E	DEC		0	AFA	BOWMAN, CALVIN MURTON
												13361		

NOTE:
Corrections include omitting "border" permits that were in the reported sections but fell outside the NDWR/Manse Fan delineation and the following correction for total reported duties (1715.17 AFA) that exceeded the supplemental total combined duty for the same permits (1474.63 AFA) by 240.54 AFA (see below).

Final calculated appropreated water rights for the area equal 13120.49 AFA.

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App	Cert	File Date	Status	Sour	QQ	Qtr	Sec	Twn	Rng	Type	Sup	Ann Duty	Units	Owner of Record

Permits that are supplemental to each other	Duty outside area	Duty inside area
72038	34.1	
72039	61.4	
72040		5.4
72041	134	
72042		288
72043	212	
72044		254
72045		118
72046		34.3
72047		16.6
72048		145
72049		7.97
72050		56.8
73075		47.9
73076		6.8
73077		123
73078		14.1
73079		29.2
73080		101
73081		216
73082	180	
73083		246
73084	114	
73085		4.63
73086	52.4	
73087	29.1	
	Total =	1715 17 AFA

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Appendix B:

USGS Monitoring Well Site Records for the Study Area

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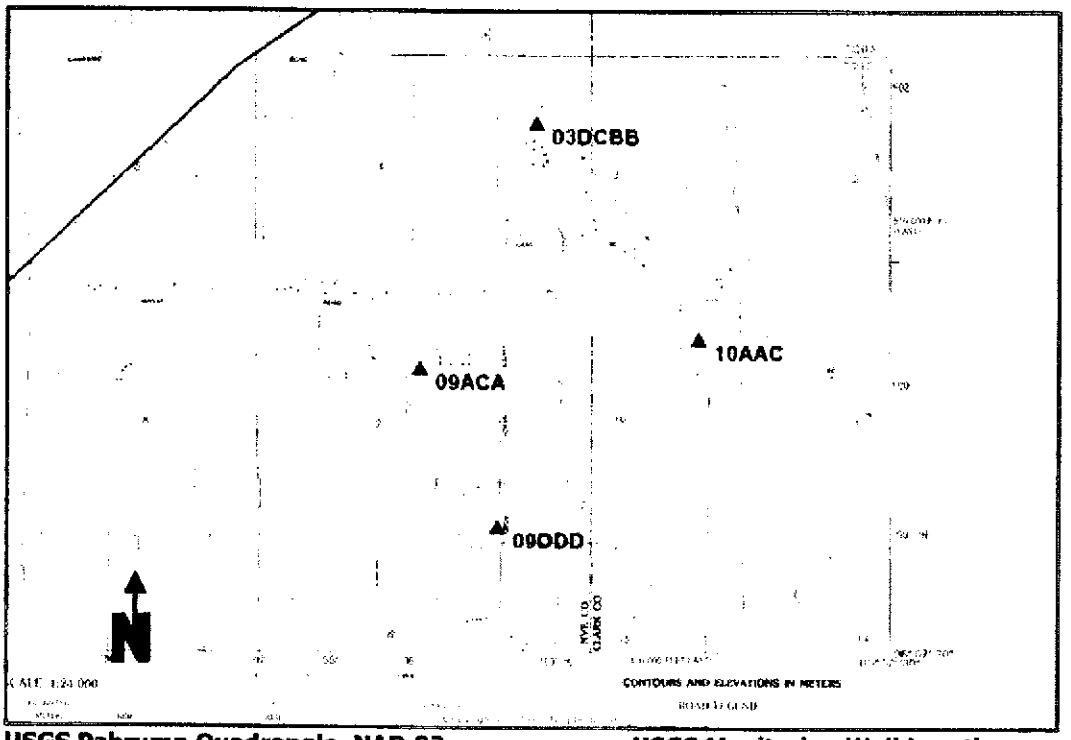
Appendix B:

USGS Monitoring Well Site Records for the Study Area



USGS Pahrump Quadrangle, NAD 83 **USGS Monitoring Well Locations**

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USGS 360755115541801 162 S21 E54 09DDD 1

Nye County, Nevada
Latitude 36°07'55",
Longitude 115°54'18" NAD27
Land-surface elevation
2,760. feet above sea level NGVD29
The depth of the well is 745 feet below land surface.
The depth of the hole is 745 feet below land surface.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period

Date	Time	Water level, feet below land surface	Status	Date	Time	Water level, feet below land surface	Status
1951-05-01		-86		1968-11-19			P
1952-02-13		-92.0		1969-03-20			F
1955-02-11		-70.8		1969-07-30			P
1955-02-13		-92.0		1969-12-17			F
1956-02-10		-62.0		1970-04-10			P
1957-02-13		-70.6		1970-08-19			P
1958-02-14		-78.7		1970-12-09			F
1959-01-29		-69.8		1971-03-10			P
1960-02-04		-72.7		1971-08-30			P
1960-02-18		-67.5		1971-12-02			F
1966-10-13			F	1972-03-21			P
1967-01-19			P	1972-06-08			P
1967-04-11			P	1972-10-12			P
1967-05-17			P	1973-01-31			F
1967-10-17			P	1973-05-22			P
1968-01-16			F	1973-11-21			F
1968-04-18			F	1974-03-14			P
1968-08-20			P	1974-07-24			P
				1974-10-24			P

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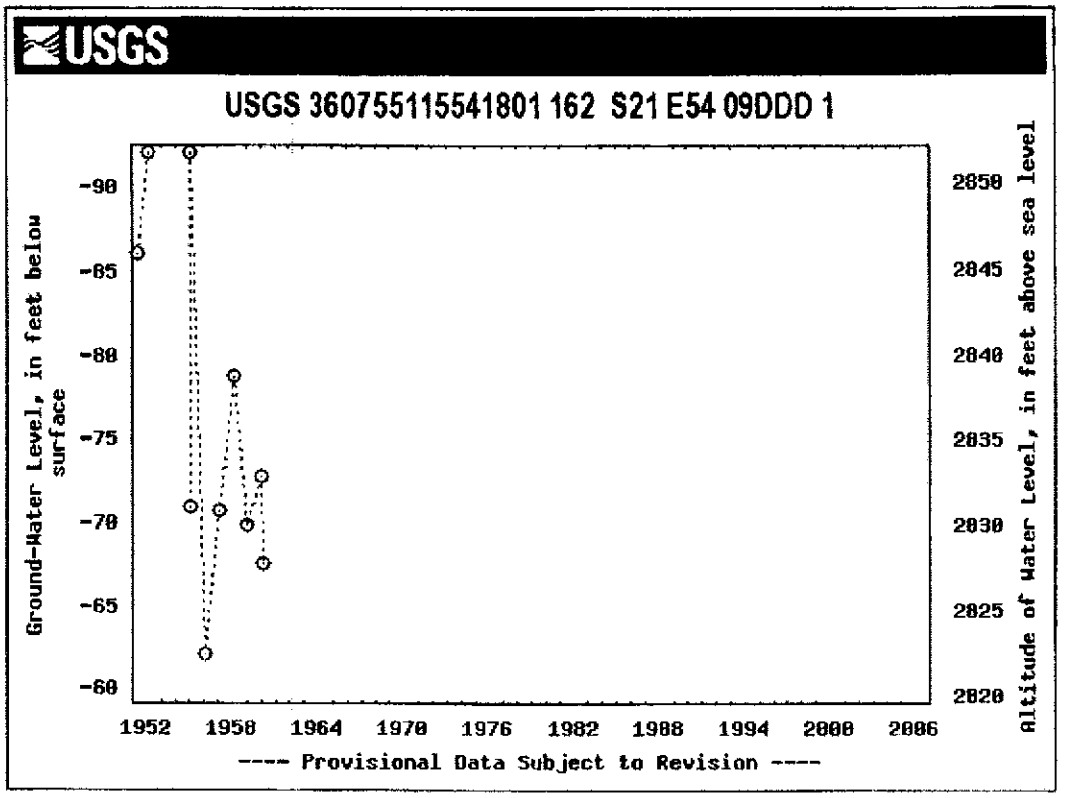

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USGS 360900115534101 162 S21 E54 03DCBB1

Clark County, Nevada
Latitude 36°09'00",
Longitude 115°53'41" NAD27
Land-surface elevation
2,893. feet above sea level NGVD29
The depth of the well is 970. feet below land surface.
The depth of the hole is 970. feet below land surface.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period

Date	Time	Water level, feet below land surface	Status	Date	Time	Water level, feet below land surface	Status
1949-02-22		19.70		1970-04-10		76.40	P
1950-02-15			N	1970-08-18		83.25	P
1966-10-13		21.40		1970-12-09		35.40	
1967-01-19			P	1971-03-10			P
1967-04-11			P	1971-08-16		87.95	
1967-07-18			P	1971-12-02		34.76	
1967-10-17			P	1972-03-21		89.00	P
1968-01-16		21.00		1972-06-08			P
1968-04-18			P	1972-10-12			P
1968-08-20			P	1973-01-31			P
1968-11-19			P	1973-05-22		88.24	
1969-03-20		65.20		1973-11-21			P
1969-08-21		73.00	P	1974-03-14			P
1969-12-17		68.12	P	1974-07-24			
				1974-10-24			

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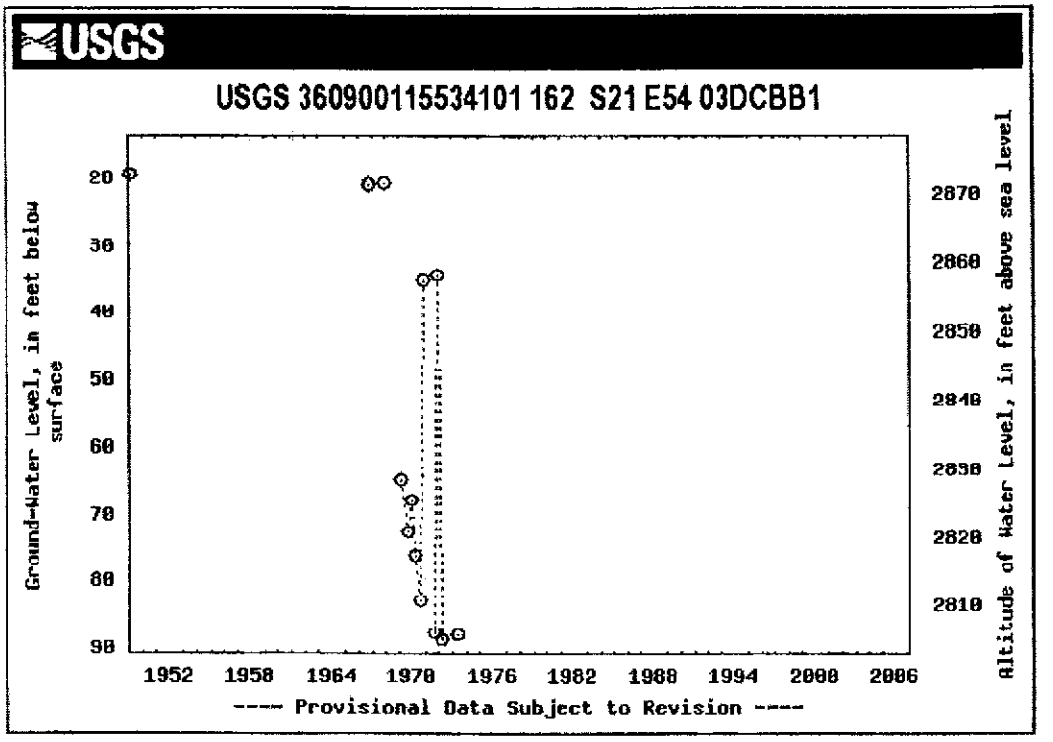

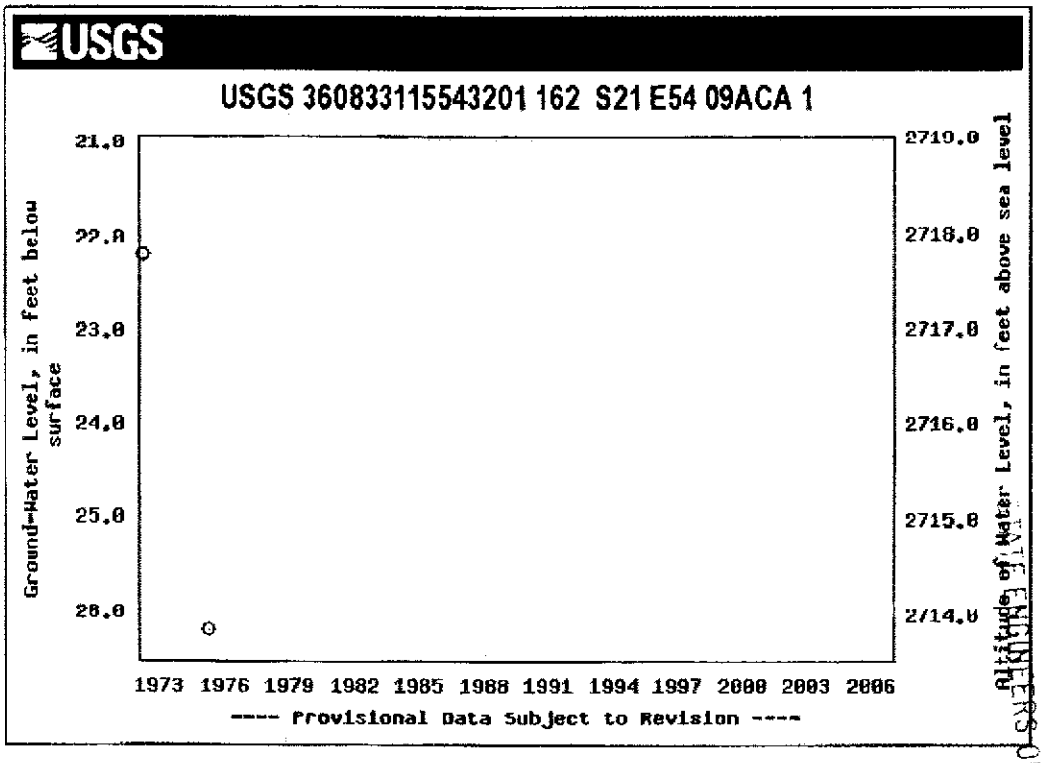

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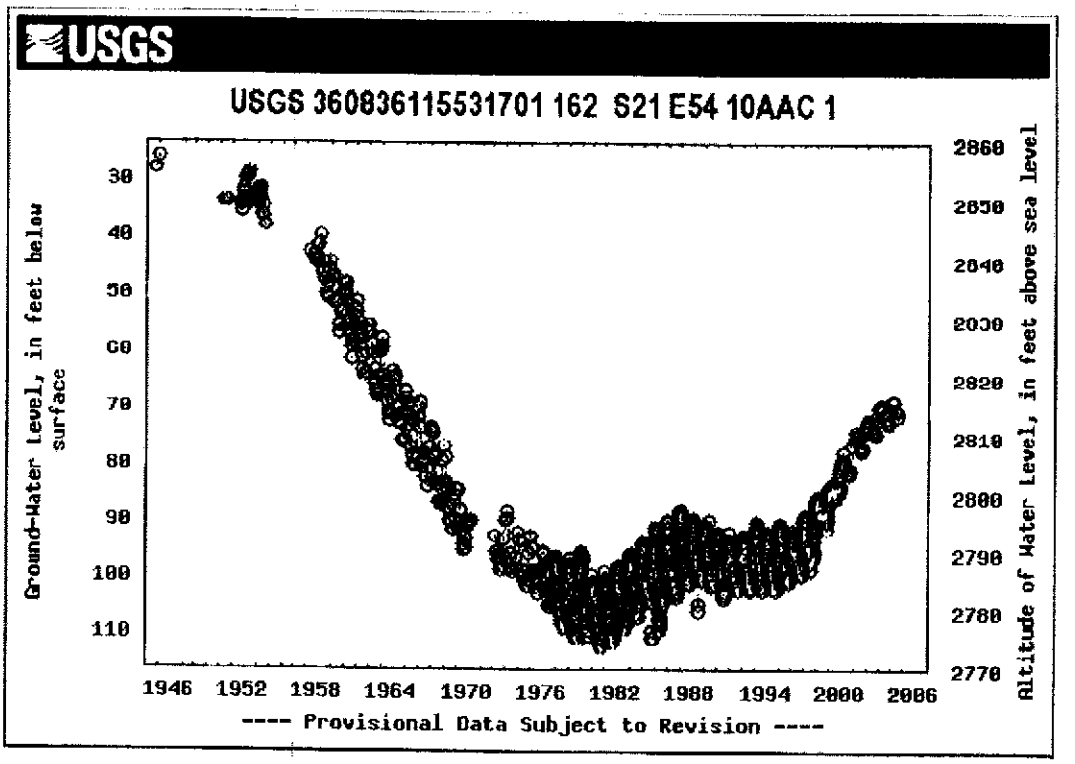

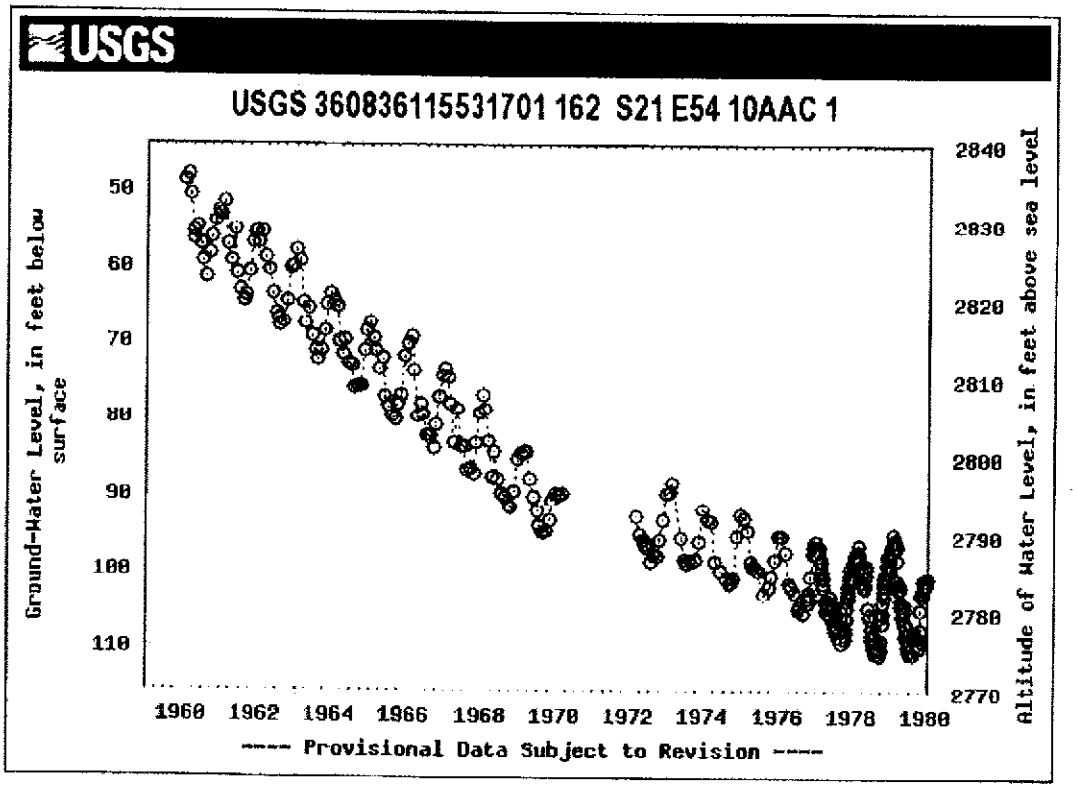

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Appendix C:

Manse Fan Water Use Analysis 1962 through 1978

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Appendix C: Manse Fan Water Use Analysis 1962-1978

prepared by Lumos and Associates, Inc

record for T21S, R54E | Sections: 01,02,03,04,09,10,11,12,15,16

Year	Permit #	Certificate#	Log #	Section	(spring AF)	Total acre-feet	Name	status (changes)	Year Total AFA
1962									
	12547	4051	1093	3		406.56	E. S. Bowman	ABR	
	10571	2987	11018	3		457.84	E. S. Bowman	CER	
	13844	4103	97752	3		741.444	E. S. Bowman	ABR(POU,10599)	
	11132	2989		3		1,368.67	E. S. Bowman	ABR(POD,10593)	
	10472	2986	12039	3		874.63	A. J. Frehner	ABR	
	10600	2988		3		820.383	P. Bowman	ABR	
	13669	4621	1664	9		669.841	P. Bowman	CER	
	15310	4284		16		632.086	M. Hafen & Sons	ABR(POU,13668)	
	12545		884	16		520.136	M. Hafen & Sons	ABR	
						6491.59			6491.59
1963									0
	(No available data)					0			
1964									
	12547	4051	1093	3	354.78	1,317.41	Mevin Bowman	ABR	
	10571	2987	11018	3	766.08	1,573.49	Murton Bowman	CER	
	11132	2989		3		1,777.78	Anderson	ABR(POD,10593)	
	13844	4103	97752	3		1,602.26	Christensen	ABR(POU,10599)	
	10472	2986	12039	3		1,254.12	Hafen	ABR	
	10600	2988		3		1,356.48	P. Bowman	ABR	
	13669	4621	1664	9		1,253.89	P. Bowman	CER	
	15310	4284		16		981.50	Hafen	ABR	
	12545		884	16		711.14	Hafen	ABR	
						11,828.08			11828.08
1965									
	12547	4051	1093	3	354.78	1,360.66	Mevin Bowman	ABR	
	10571	2987	11018	3	485.085	1,533.64	Murton Bowman	CER	
	11132	2989		3		2,175.83	Anderson	ABR(POD,10593)	
	13844	4103	97752	3		1,141.67	Christensen	ABR(POU,10599)	
	10472	2986	12039	3		848.40	Hafen	ABR	
	10600	2988		3		1,457.96	P. Bowman	ABR	
	13669	4621	1664	9		1,219.21	P. Bowman	CER	
	15310	4284		16		649.28	Hafen	ABR	
	12545		884	16		428.64	Hafen	ABR	
						10,815.29			10815.29

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Year	Permit #	Certificate#	Log #	Section	(spring AF)	Total acre-feet	Name	status (changes)	Year Total AFA
1966									
	12547	4051	1093	3	426.685	1,278.51	Mevin Bowman	ABR	
	10571	2987	11018	3	644.225	1,482.08	Murton Bowman	CER	
	11132	2989		3		1,740.59	Anderson	ABR(POD,10593)	
	13844	4103	97752	3		1,098.23	Christensen	ABR(POU,10599)	
	10472	2986	12039	3		1,292.59	Tim Hafen Ranches	ABR	
	15309	4285		16		555.222	Tim Hafen Ranches	ABR(POU,13862)	
	15310	4284		16		0	Tim Hafen Ranches	ABR(POU,13668)	
	15308	4820	884	16		218.566	Tim Hafen Ranches	ABR(POU,12545)	
	10600	2988		3		1,469.26	P. Bowman	ABR	
	13669	4621	1664	9		1,767.08	P. Bowman	CER	
						10,902.11			10,902.11
1967									
	12547	4051	1093	3	0	996.82	Mevin Bowman	ABR	
	10571	2987	11018	3	1,100.11	2,166.13	Murton Bowman	CER	
	11132	2989		3		1,758.03	Anderson	ABR(POD,10593)	
	13844	4103	97752	3		1,075.03	Christensen	ABR(POU,10599)	
	10472	2986	12039	3		818.10	Tim Hafen Ranches	ABR	
	15309	4285		16		664.62	Tim Hafen Ranches	ABR(POU,13862)	
	15310	4284		16		0.00	Tim Hafen Ranches	ABR(POU,13668)	
	15308	4820	884	16		362.86	Tim Hafen Ranches	ABR(POU,12545)	
	10600	2988		3		1,498.22	P. Bowman	ABR	
	13669	4621	1664	9		1,050.52	P. Bowman	CER	
						10,390.32			10,390.32
1968									
	12547	4051	1093	3	0	1,347.52	Mevin Bowman	ABR	
	10571	2987	11018	3	861.4	3,003.43	Murton Bowman	CER	
	11132	2989		3		2,391.02	Anderson	ABR(POD,10593)	
	13844	4103	97752	3		1,228.27	Christensen	ABR(POU,10599)	
	10472	2986	12039	3		1,804.90	Tim Hafen Ranches	ABR	
	15309	4285		16		1,062.60	Tim Hafen Ranches	ABR(POU,13862)	
	15310	4284		16		0	Tim Hafen Ranches	ABR(POU,13668)	
	15308	4820	884	16		343.76	Tim Hafen Ranches	ABR(POU,12545)	
	10600	2988		3		2,086.51	P. Bowman	ABR	
	13669	4621	1664	9		899.36	P. Bowman	CER	
						14,167.37			14,167.37

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Year	Permit #	Certificate#	Log #	Section	(spring AF)	Total acre feet	Name	status (changes)	Year Total AFA
1969									
	12547	4051	1093	3	0	1,140.88	Mevin Bowman	ABR	
	10571	2987	11018	3	714.532	1,628.85	Murton Bowman	CER	
	11132	2989		3		1,630.66	Anderson	ABR(POD,10593)	
	13844	4103	97752	3		995.32	Christensen	ABR(POU,10599)	
	10472	2986	12039	3		1,638.49	Tim Hafen Ranches	ABR	
	15309	4285		16		751.82	Tim Hafen Ranches	ABR(POU,13862)	
	15310	4284		16		0.00	Tim Hafen Ranches	ABR(POU,13668)	
	15308	4820	884	16		263.01	Tim Hafen Ranches	ABR(POU,12545)	
	10600	2988		3		2,135.94	P. Bowman	ABR	
	13669	4621	1664	9		904.25	P. Bowman	CER	
						11,089.21			11,089.21
1962 to 1969	75683.97	**Total Acre-Feet**							
1970									
	19032	6867		3		1,248.15	Melvin Bowman	ABR (POU,12547)	
	19031	6866		3		1,050.72	Murton Bowman	CER(POU,10571)	
	2287	Manse Spring			441.65	441.65	Murton Bowman	CER(POU,10571)	
	19029	7031		3		2,390.76	Linford Anderson	ABR (POU,11132)	
	19030	6768	62100(&2)	3		1,644.98	Lyle Christensen	CER (POU,13844)	
	24157	7600		3		1,711.14	Tim Hafen Ranches	ABR (POU,MOU10472)	
	18070		2696	9		0.00	Tim Hafen Ranches	ABR (POU,POD,14242)	
	24158		9214	16		1,160.00	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24159	7957	2696	9		0.00	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24153	7601	1702	16		580.72	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24154	7602	884	16		305.45	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24156	7956	9214	16		1,153.62	Tim Hafen Ranches	ABR (POU,13667)	
	10600	2988		3		1,924.23	Perry Bowman	ABR	
	13669	4621	1664	9		969.85	Perry Bowman	CER	
						14,581.27			14,581.27

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Year	Permit #	Certificate#	Log #	Section	(spring AF)	Total acre-feet	Name	status (changes)	Year Total AFA
1971									
	19032	6867		3		1,314.92	Melvin Bowman	ABR (POU,12547)	
	19031	6866		3		1,635.05	Murton Bowman	CER(POU,10571)	
	2287	Manse Spring			715.4	715.40	Murton Bowman	CER(POU,10571)	
	19029	7031		3		1,780.88	Linford Anderson	ABR (POU,11132)	
	19030	6768	62100(&2)	3		1,524.96	Lyle Christensen	CER (POU,13844)	
	24157	7600		3		1,307.64	Tim Hafen Ranches	ABR (POU,MOU10472)	
	18070		2696	9		0.00	Tim Hafen Ranches	ABR (POU,POD,14242)	
	24158		9214	16		965.12	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24159	7957	2696	9		0.00	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24153	7601	1702	16		480.70	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24154	7602	884	16		233.93	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24156	7956	9214	16		979.44	Tim Hafen Ranches	ABR (POU,13667)	
	10600	2988		3		1,113.21	Perry Bowman	ABR	
	13669	4621	1664	9		977.22	Perry Bowman	CER	
						13,028.47			13,028.47
1972									
	19032	6867		3		1,033.50	Melvin Bowman	ABR (POU,12547)	
	19031	6866		3		1,654.73	Murton Bowman	CER(POU,10571)	
	2287	Manse Spring			715.4	715.40	Murton Bowman	CER(POU,10571)	
	19029	7031		3		1,659.12	Linford Anderson	ABR (POU,11132)	
	19030	6768	62100(&2)	3		1,376.70	Lyle Christensen	CER (POU,13844)	
	24157	7600		3		1,168.20	Tim Hafen Ranches	ABR (POU,MOU10472)	
	24158		9214	16		0.00	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24159	7957	2696	9		1,056.38	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24153	7601	1702	16		665.00	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24154	7602	884	16		287.57	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24156	7956	9214	16		788.04	Tim Hafen Ranches	ABR (POU,13667)	
	26511	7960		16		140.80	Tim Hafen Ranches	REL(POU, 25829)	
	10600	2988		3		1,205.40	Perry Bowman	ABR	
	13669	4621	1664	9		717.30	Perry Bowman	CER	
						12,468.14			12,468.14

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Year	Permit #	Certificate#	Log #	Section	(spring AF)	Total acre-feet	Name	status (changes)	Year Total AFA
1973									
	19032	6867		3		1,119.40	Melvin Bowman	ABR (POU,12547)	
	19031	6866		3		1,239.52	Murton Bowman	CER(POU,10571)	
	2287	Manse Spring			576.7	576.70	Murton Bowman	CER(POU,10571)	
	19029	7031		3		2,096.20	Linford Anderson	ABR (POU,11132)	
	19030	6768	62100(&2)	3		1,546.14	Lyle Christensen	CER (POU,13844)	
	24157	7600		3		1,669.70	Tim Hafen Ranches	ABR (POU,MOU10472)	
	24158		9214	16		0.00	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24159	7957	2696	9		1,115.84	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24153	7601	1702	16		936.32	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24154	7602	884	16		117.71	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24156	7956	9214	16		1,346.40	Tim Hafen Ranches	ABR (POU,13667)	
	26511	7960		16		140.80	Tim Hafen Ranches	REL(POU, 25829)	
	10600	2988		3		885.60	Perry Bowman	ABR	
	13669	4621	1664	9		1,114.83	Perry Bowman	CER	
						13,905.16			13,905.16
1974									
	19032	6867		3		1,505.40	Melvin Bowman	ABR (POU,12547)	
	19031	6866		3		1,305.56	Murton Bowman	CER(POU,10571)	
	2287	Manse Spring			395	395.00	Murton Bowman	CER(POU,10571)	
	19029	7031		3		1,784.00	Linford Anderson	ABR (POU,11132)	
	19030	6768	62100(&2)	3		1,461.42	Lyle Christensen	CER (POU,13844)	
	24157	7600		3		1,233.10	Tim Hafen Ranches	ABR (POU,MOU10472)	
	24159		9214	16		0.00	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24158	7957	2696	9		972.40	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24153	7601	1702	16		750.12	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24154	7602	884	16		154.96	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24156	7956	9214	16		1,100.88	Tim Hafen Ranches	ABR (POU,13667)	
	26511	7960		16		0.00	Tim Hafen Ranches	REL(POU, 25829)	
	10600	2988		3		971.70	Perry Bowman	ABR	
	13669	4621	1664	9		1,089.20	Perry Bowman	CER	
						12,723.74			12,723.74

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Year	Permit #	Certificate#	Log #	Section	(spring AF)	Total acre-feet	Name	status (changes)	Year Total AFA
1975									
	19032	6867		3		1,370.48	Melvin Bowman	ABR (POU,12547)	
	19031	6866		3		1,559.56	Murton Bowman	CER(POU,10571)	
	19031	Old well				130.24	Murton Bowman	CER(POU,10571)	
	19029	7031		3		1,810.76	Linford Anderson	ABR (POU,11132)	
	19030	6768	62100(&2)	3		1,616.74	Lyle Christensen	CER (POU,13844)	
	24157	7600		3		949.90	Tim Hafen Ranches	ABR (POU,MOU10472)	
	24159		9214	16		446.17	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24158	7957	2696	9		782.34	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24153	7601	1702	16		736.82	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24154	7602	884	16		320.35	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24156	7956	9214	16		891.00	Tim Hafen Ranches	ABR (POU,13667)	
	26511	7960		16		0.00	Tim Hafen Ranches	REL(POU, 25829)	
	10600	2988		3		947.10	Perry Bowman	ABR	
	13669	4621	1664	9		1,120.32	Perry Bowman	CER	
						12,681.78			12,681.78
1976									
	19032	6867		3		1,389.00	Melvin Bowman	ABR (POU,12547)	
	19031	6866		3		1,452.88	Murton Bowman	CER(POU,10571)	
	19031	Old well				112.64	Murton Bowman	CER(POU,10571)	
	19029	7031		3		1,757.24	Linford Anderson	ABR (POU,11132)	
	19030	6768	62100(&2)	3		1,249.62	Lyle Christensen	CER (POU,13844)	
	24157	7600		3		1,280.30	Tim Hafen Ranches	ABR (POU,MOU10472)	
	24159		9214	16		423.72	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24158	7957	2696	9		795.60	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24153	7601	1702	16		593.31	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24154	7602	884	16		341.21	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24156	7956	9214	16		914.76	Tim Hafen Ranches	ABR (POU,13667)	
	26511	7960		16		0.00	Tim Hafen Ranches	REL(POU, 25829)	
	10600	2988		3		897.90	Perry Bowman	ABR	
	13669	4621	1664	9		1,131.99	Perry Bowman	CER	
						12,340.17			12,340.17

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Year	Permit #	Certificate#	Log #	Section	(spring AF)	Total acre-feet	Name	status (changes)	Year Total AFA
1977									
	19032	6867		3		1,389.00	Melvin Bowman	ABR (POU,12547)	
	19031	6866		3		1,447.80	Murton Bowman	CER(POU,10571)	
	19031	Old well				274.56	Murton Bowman	CER(POU,10571)	
	19029	7031		3		2,854.40	Linford Anderson	ABR (POU,11132)	
	19030	6768	62100(&2)	3		1,291.98	Lyle Christensen	CER (POU,13844)	
	24157	7600		3		1,191.80	Tim Hafen Ranches	ABR (POU,MOU10472)	
	24159		9214	16		102.96	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24158	7957	2696	9		680.68	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24153	7601	1702	16		53.20	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24154	7602	884	16		198.17	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24156	7956	9214	16		700.92	Tim Hafen Ranches	ABR (POU,13667)	
	10600	2988		3		688.80	Perry Bowman	ABR	
	13875	4363	18551	9		198.39	Adaven Management, Inc.	CER	
						11,072.66			11,072.66
1978									
	19032	6867		3		1,389.00	Melvin Bowman	ABR (POU,12547)	
	19031	6866		3		838.20	Murton Bowman	CER(POU,10571)	
	19031	Old well				415.88	Murton Bowman	CER(POU,10571)	
	19029	7031		3		2,283.52	Linford Anderson	ABR (POU,11132)	
	19030	6768	62100(&2)	3		1,320.22	Lyle Christensen	CER (POU,13844)	
	24157	7600		3		784.70	Tim Hafen Ranches	ABR (POU,MOU10472)	
	24159		9214	16		118.80	Tim Hafen Ranches	ABR (POU,POD,17884)	
	24160	7957	2696	9		539.24	Tim Hafen Ranches	ABR (POU,POD,17884)	
	15310	4284		16		0.00	Tim Hafen Ranches	ABR (POU,13668)	
	24154	7602	884	16		235.42	Tim Hafen Ranches	ABR (POU,POD,18070)	
	24156	7956	9214	16		491.04	Tim Hafen Ranches	ABR (POU,13667)	
	10600	2988		3		467.40	Perry Bowman	ABR	
	13875	4363	18551	9		564.04	Adaven Management, Inc.	CER	
						9,447.46			9,447.46
									112248.85
1970 to 1978	**112,248.85**	**Total Acre-Feet**			**Average over 7 years = 12472 AFA**				
1962 to 1969	**75683.97**	**Total Acre-Feet**			**Average over 9 years = 10812 AFA**				
1962 to 1978	**187,932.82**	**Total Acre-Feet**			**Average over 16 years = 11746 AFA**				

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Appendix *D*

Manse Fan Groundwater Pumpage Inventory 1985 through 2005

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Appendix D: Manse Fan Groundwater Pumpage Inventory

1985 through 2005 Prepared by Lumos and Associates

Records are for points of diversion (POD) on Sections: 01,02,03,04,09,10,11,12,15,16

Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
1985						
	10571, 14291, 19031, 21183 19334	Y	04, 05	1,476.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	928	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,968.50	Perry Bowman	
	19030	Y	04, 05	1,148.00	Edgar Christense	
	41157, 41158, 41159, 41160 41161, 41162, 41163, 41164 41167, 41169, 41170, 41171 41172, 49838	N	08, 09, 16, 17	3,097.50	Tim Hafen Ranches Inc.	
						8,618.00
1986						
	10571, 14291, 19031, 21183 19334	Y	04, 05	1,176.55	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	1228	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,934.00	Perry Bowman	
	19030	Y	04, 05	1,073.00	Edgar Christense	
	41157, 41158, 41159, 41160 41161, 41162, 41163, 41164 41167, 41169, 41170, 41171 41172, 49838	N	08, 09, 16, 17	3,148.00	Tim Hafen Ranches Inc.	
						7,383.00
1987						
	10571, 14291, 19031, 21183 19334	Y	04, 05	934.50	Murton Bowman	
	11132, 14241, 19029	Y	03, 04, 05	1228	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,934.00	Perry Bowman	
	19030	Y	04, 05	1,073.00	Edgar Christense	
	41157, 41158, 41159, 41160 41161, 41162, 41163, 41164 41167, 41169, 41170, 41171 41172, 49838	N	08, 09, 16, 17	3,464.00	Tim Hafen Ranches Inc.	
						8,633.50

(* POU = points of use, have been checked against corresponding POD)

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
1988						
	10571, 14291, 19031, 21183	Y	04, 05	1,016.30	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	1028	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,934.00	Perry Bowman	
	19030	Y	04, 05	990.20	Edgar Christense	
	41157, 41158, 41159, 41160	N	08, 09, 16, 17	3,464.00	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838					
						8,432.50
1989						
	10571, 14291, 19031, 21183	Y	04, 05	1,125.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	1028	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,934.00	Perry Bowman	
	19030	Y	04, 05	990.20	Edgar Christense	
	41157, 41158, 41159, 41160	N	08, 09, 16, 17	3,306.50	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838					
						8,383.70
1990						
	10571, 14291, 19031, 21183	Y	04, 05	1,125.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	970.5	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,934.00	Perry Bowman	
	19030	Y	04, 05	829.00	Edgar Christense	
	41157, 41158, 41159, 41160	N	08, 09, 16, 17	3,763.40	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838					
						8,621.90

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
1991						
	10571, 14291, 19031, 21183	Y	04, 05	931.80	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	1,140.50	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,858.50	Perry Bowman	
	19030	Y	04, 05	776.50	Edgar Christense	
	41157, 41158, 41159, 41160	N	08, 09, 16, 17	3,264.00	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838					
						7,971.30
1992						
	10571, 14291, 19031, 21183	Y	04, 05	864.55	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	1,115.50	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,616.00	Perry Bowman	
	19030	Y	04, 05	731.00	Edgar Christense	
	41157, 41158, 41159, 41160	N	08, 09, 16, 17	3,175.50	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838					
						7,502.55
1993						
	10571, 14291, 19031, 21183	Y	04, 05	889.05	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	826.50	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,516.00	Perry Bowman	
	19030	Y	04, 05	878.00	Edgar Christense	
	41157, 41158, 41159, 41160	N	08, 09, 16, 17	3,367.60	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838					
						7,477.15

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
1994						
	10571, 14291, 19031, 21183	Y	04, 05	1,174.05	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	626.50	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,641.00	Perry Bowman	
	19030	Y	04, 05	878.00	Edgar Christense	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	3,589.50	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838					
						7,909.05
1995						
	10571, 14291, 19031, 21183	Y	04, 05	1,549.05	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	500.00	Linford Anderson	
	13669, 13875, 22735	Y	09, 16, 17	1,641.50	Perry Bowman	
	19030	Y	04, 05	1,094.00	Edgar Christense	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	3,356.00	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838					
						8,140.55
1996						
	10571, 14291, 19031, 21183	Y	04, 05	1,326.55	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	578.00	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	1,643.50	Perry Bowman	
	19030	Y	04, 05	1,094.00	Edgar Christense	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	3,290.50	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164	(except 58956				
	41167, 41169, 41170, 41171	and 60911)				
	41172, 49838, 58956,60911					
	57337	N	15	4.5	Hepburn	
						7,937.05

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
1997						
	10571, 14291, 19031, 21183	Y	04, 05	1,326.55	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	663.00	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	2,039.50	Perry Bowman	
	19030	Y	04, 05	1,094.00	Edgar Christense	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	3,609.55	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164	(except 58956				
	41167, 41169, 41170, 41171	and 60911)				
	41172, 49838, 58956,60911					
	26510, 29941					
	45574	Y	16	3.40	Santovito	
	57337	N	15	4.5	Hepburn	
						8,740.50
					Total for 13-years =	105750.75
					(1985 to 1997)	
					Average over 13-year period =	8134.67 AFA
1998						
	10571, 14291, 19031, 21183	Y	04, 05	0.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	37.65	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	1,854.50	Perry Bowman	
	19030	Y	04, 05	1,013.00	Edgar Christense	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	3,699.75	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164	(except 58956				
	41167, 41169, 41170, 41171	and 60911)				
	41172, 49838, 58956,60911					
	26510, 29941					
	45574	Y	16	3.40	Santovito	
	57337, 57338	N	15	5	Hepburn	
	63142	N	19	2	Markut	
						6,615.30

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
1999						
	10571, 14291, 19031, 21183	Y	04, 05, 06	680.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	0.00	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	1,635.50	Perry Bowman	
	19030	Y	04, 05	619.00	Edgar Christense	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	2,822.37	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164	(except 58956				
	41167, 41169, 41170, 41171	and 60911)				
	41172, 49838, 58956,60911					
	26510, 29941					
	45574	Y	16	3.40	Santovito	
	57337, 57338	N	15	5	Hepburn	
	63142	N	19	0.14	Markut	
	63145	N	19	0.01	US Post Office	
						5,765.42
2000						
	10571, 14291, 19031, 21183	Y	04, 05, 06	362.50	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	0.00	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	1,635.50	Perry Bowman	
	19030	Y	04, 05	0.00	Edgar Christense	
	24873	Y	19	2.00	Oxborrow	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	2,690.14	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164	(except 58956)				
	41167, 41169, 41170, 41171					
	41172, 49838, 58956,60911					
	26510, 29941					
	45574	Y	16	7.74	Santovito	
	57337, 57338	N	15	5.84	Hepburn	
	63142	N	19	0.53	Markut	
	63145	N	19	0.01	US Post Office	
	64551	N	10	2.00	Grammer	
	65105, 65106	N	16, 17	3.00	HHH Investments	
	65459, 65460, 65461	N	3	0.10	Collins	
						4,709.36

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
2001						
	10571, 14291, 19031, 21183	Y	04, 05, 06	0.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	0.00	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	1,497.50	Perry Bowman	
	19030	Y	04, 05	117.88	Edgar Christense	
	24873	Y	19	2.00	Oxborrow	
	24874	Y	19	45.00	Kent Leonard	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	2,711.43	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164	(except 58956)				
	41167, 41169, 41170, 41171					
	41172, 49838, 58956,60911					
	26510, 29941					
	45574	Y	16	5.48	Santovito	
	57337, 57338	N	15	3.28	Hepburn	
	63142	N	19	0.1	Markut	
	63145	N	19	0.01	US Post Office	
	64551	N	10	8.76	Grammer	
	65105, 65106	N	16, 17	11.00	HHH Investments	
	65459, 65460, 65461	N	3	120.22	Collins	
						4,522.66

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
2002						
	10571, 14291, 19031, 21183	Y	04, 05, 06	0.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	0.00	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	737.10	Perry Bowman	
	19030	Y	04, 05	58.77	Edgar Christense	
	24874	Y	19	0.00	Kent Leonard	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	2,275.84	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838, 58956,60911					
	26510, 29941					
	45574	Y	16	5.60	Santovito	
	57337, 57338	Y	15	0.25	Hepburn	
	63142	N	19	0.06	Markut	
	63145	N	19	0.01	US Post Office	
	63964	N	3	2.00	Goff Family Trust	
	64551	N	10	10.25	Grammer	
	64887	N	10	1.00	Bowman	
	65105, 65106	N	16, 17	43.79	HHH Investments	
	65459, 65460, 65461	N	3	55.08	Collins	
	66920	N	3	1.00	Christensen	
	66924	N	15	1.00	Terrel	
	67336	N	10	1.00	Gangadharani	
						3,192.75

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
2003						
	10571, 14291, 19031, 21183	Y	04, 05, 06	0.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	0.00	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	923.00	Perry Bowman	
	19030	Y	04, 05	111.12	Edgar Christense	
	24874	Y	19	0.00	Kent Leonard	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	1,326.14	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838, 58956,60911					
	26510, 29941					
	45574	Y	16	3.40	Santovito	
	57337, 57338	Y	15	0.25	Hepburn	
	63142	N	19	0	Markut	
	63145	N	19	0.01	US Post Office	
	63964	N	3	1.49	Goff Family Trust	
	64551	N	10	11.19	Grammer	
	64887	N	10	0.00	Bowman	
	65105, 65106, 68495,69248	N	16, 17	174.88	HHH Investments	
	69249					
	65459, 65460, 65461	N	3	131.25	Collins	
	66920	N	3	1.00	Christensen	
	66924	N	15	1.00	Terrel	
	67336	N	10	1.00	Gangadharan	
	68801	N	3	0.50	Wulfenstein	
						2,686.23

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
2004						
	10571, 14291, 19031, 21183	Y	04, 05, 06	0.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	0.00	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	1,062.10	Perry Bowman	
	19030	Y	04, 05	180.71	Edgar Christense	
	24874	Y	19	0.00	Kent Leonard	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	1,073.89	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838, 58956,60911					
	26510, 29941					
	45574	Y	16	7.20	Santovito	
	57337, 57338	Y	15	0.25	Hepburn	
	63142	N	19	0	Markut	
	63145	N	19	0.01	US Post Office	
	63964	N	3	0.00	Goff Family Trust	
	64551	N	10	9.63	Grammer	
	64887	N	10	0.00	Bowman	
	65105, 65106, 68495,69248	N	16, 17	158.58	HHH Investments	
	69249, 69694, 70408					
	65459, 65460, 65461	N	3	207.61	Collins	
	66920	N	3	0.00	Christensen	
	66924	N	15	1.00	Terrel	
	67336	N	10	0.79	Gangadharan	
	68801	N	3	53.38	Wulfenstein	
	68988	N	19	0.95	Hernandez	
	69825	N	19	1.12	Cavallo	
						2,757.22

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Year	Application/Permit numbers	Certificate Y/N	POU* Sections	Total (AFA)	Owner of Record	Total for Year (AFA)
2005						
	10571, 14291, 19031, 21183	Y	04, 05, 06	0.00	Murton Bowman	
	11132, 14241, 19029, 24773	Y	03, 04, 05	0.00	Linford Anderson	
	13669, 13875, 22735, 59414	Y (except 59414)	09, 16, 17	0.00	Perry Bowman	
	19030	Y	04, 05	220.51	Edgar Christense	
	24874	Y	19	0.00	Kent Leonard	
	41157, 41158, 41159, 41160	Y	08, 09, 16, 17	159.26	Tim Hafen Ranches Inc.	
	41161, 41162, 41163, 41164					
	41167, 41169, 41170, 41171					
	41172, 49838, 58956,60911					
	26510, 29941					
	45574	Y	16	5.80	Santovito	
	57129	N	3	1.44	McKoy Trust	
	57337, 57338	Y	15	0.08	Hepburn	
	58847	N	19	1.00	Heidi Horner	
	63142	N	19	0.07	Markut	
	63145	N	19	0.01	US Post Office	
	63964	N	3	0.00	Goff Family Trust	
	64551	N	10	8.83	Grammer	
	64887	N	10	0.00	Bowman	
	65105, 65106, 68495,69248	N	16, 17	162.85	HHH Investments	
	69249, 69694, 70408					
	66920	N	3	0.00	Christensen	
	66924	N	15	1.00	Terrel	
	67336	N	10	1.29	Gangadharan	
	68801, 71008	N	3	143.53	Wulfenstein	
	68988	N	19	0.95	Hernandez	
	69127, 69128, 69129	N	19	1.00	Lioubas	
	69825	N	19	1.12	Cavallo	
	70325, 70326, 70327, 70651 70652	N	3	181.84	Mountain Falls	
						890.58

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Appendix E

NDWR Code Definitions

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CORPS OF ENGINEERS OFFICE

CODE DEFINITIONS FOR WATER RIGHTS DATABASE

APPLICATION STATUS

ABN	ABANDONED
ABR	ABROGATED
APP	APPLICATION
CAN	CANCELLED
CER	CERTIFICATE
CUR	CURTAILED
DEC	DECREED
DEN	DENIED
EXP	EXPIRED
FOR	FORFEITED
PER	PERMIT
RFA	READY FOR ACTION
RFP	READY FOR ACTION (PROTESTED)
RLP	RELINQUISH A PORTION
REL	RELINQUISHED
RES	RESERVED
RVP	REVOCABLE PERMIT
RVK	REVOKED
SUP	SUPERCEDED
SUS	SUSPENDED
VST	VESTED RIGHT
WDR	WITHDRAWN
REJ	REJECTED

COUNTY

AL	ALPINE
CC	CARSON CITY
CH	CHURCHILL
CL	CLARK
DO	DOUGLAS
EL	ELKO
ES	ESMERALDA
EU	EUREKA
HU	HUMBOLDT
LA	LANDER
LI	LINCOLN
LY	LYON
MI	MINERAL
NY	NYE
PE	PERSHING
ST	STOREY
WA	WASHOE
WP	WHITE PINE

USE

COM	COMMERCIAL
CON	CONSTRUCTION
DEC	AS DECREED
DOM	DOMESTIC
DWR	DEWATERING
ENV	ENVIRONMENTAL
IND	INDUSTRIAL
IRC	IRRIGATION-CAREY ACT
IRD	IRRIGATION-DLE
IRR	IRRIGATION
MM	MINING AND MILLING
MUN	MUNICIPAL
OTH	OTHER
PWR	POWER
QM	QUASI-MUNICIPAL
REC	RECREATIONAL
STK	STOCKWATERING
STO	STORAGE
UKN	UKNOWN
WLD	WILDLIFE

SOURCE

EFF	EFFLUENT
GEO	GEOTHERMAL
LAK	LAKE
OGW	OTHER GROUND WATER
OSW	OTHER SURFACE WATER
RES	RESERVOIR
SPR	SPRING
STO	STORAGE
STR	STREAM
UG	UNDERGROUND
UKN	UKNOWN

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Division of Water Resources Home Department of Conservation and Natural Resources State of Nevada

State of Nevada
Department of Conservation & Natural Resources
Division of Water Resources
Tracy Taylor, P. E. State Engineer

Code Definitions

Site Type

E Existing (deepen)
N New
P Proprietary-new
Y Proprietary-existing

Drilling Method

A Air rotary
B Bored or augered
C Cable tool
D Dug
H Hydraulic Rotary-Mud
J Jetted
P Air percussion
R Reverse rotary
T Trenching
U Unknown
V Driven
W Drive and wash
Z Other (explain in remarks)

Work Type

D Deepen
G Geothermal
N New
O Other (explain in remarks)
P Plug or abandonment
R Recondition
S Replacement Well
T Test

Proposed Use

A	Air conditioning	AC
B	Bottling	BOT
C	Commercial	COM
D	Dewater	DWR
E	Power	PWR
F	Fire	FIR
G	Monitoring Well	MON
H	Domestic	DOM
I	Irrigation	IRR
J	Industrial-Cooling	IND
K	Mining	MM
M	Medicinal	MED
N	Industrial	IND
P	Public Supply - Municipal	MUN
Q	Aquaculture	AQC
R	Recreation	REC
S	Stock	STK
T	Institution	INS
U	Unused	UNU
X	Test Well	TST
Y	Desalination	DES
Z	Other (explain in remarks)	OTH

Test Method

A Air Lift
B Bucket
C Centrifugal Pump
J Jet Pump
P Piston Pump
R Rotary
S Submergible Pump
T Turbine

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Lat/Long Accuracy

M Accurate to 1 minute, about 6,060 feet
T Accurate to 10 seconds, about 1010 feet
F Accurate to 5 seconds, about 505 feet
G GPS Data (Accuracy not yet defined)
U Unknown
Z Other (explain in remarks)

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Appendix F:

PLATE I – SITE PLAN
DESERT UTILITIES, INC. PROPOSED WATER DIVERSION RELOCATIONS

PLATE II – HYDROLOGIC SETTING
DESERT UTILITIES, INC. PROPOSED WATER DIVERSION RELOCATIONS

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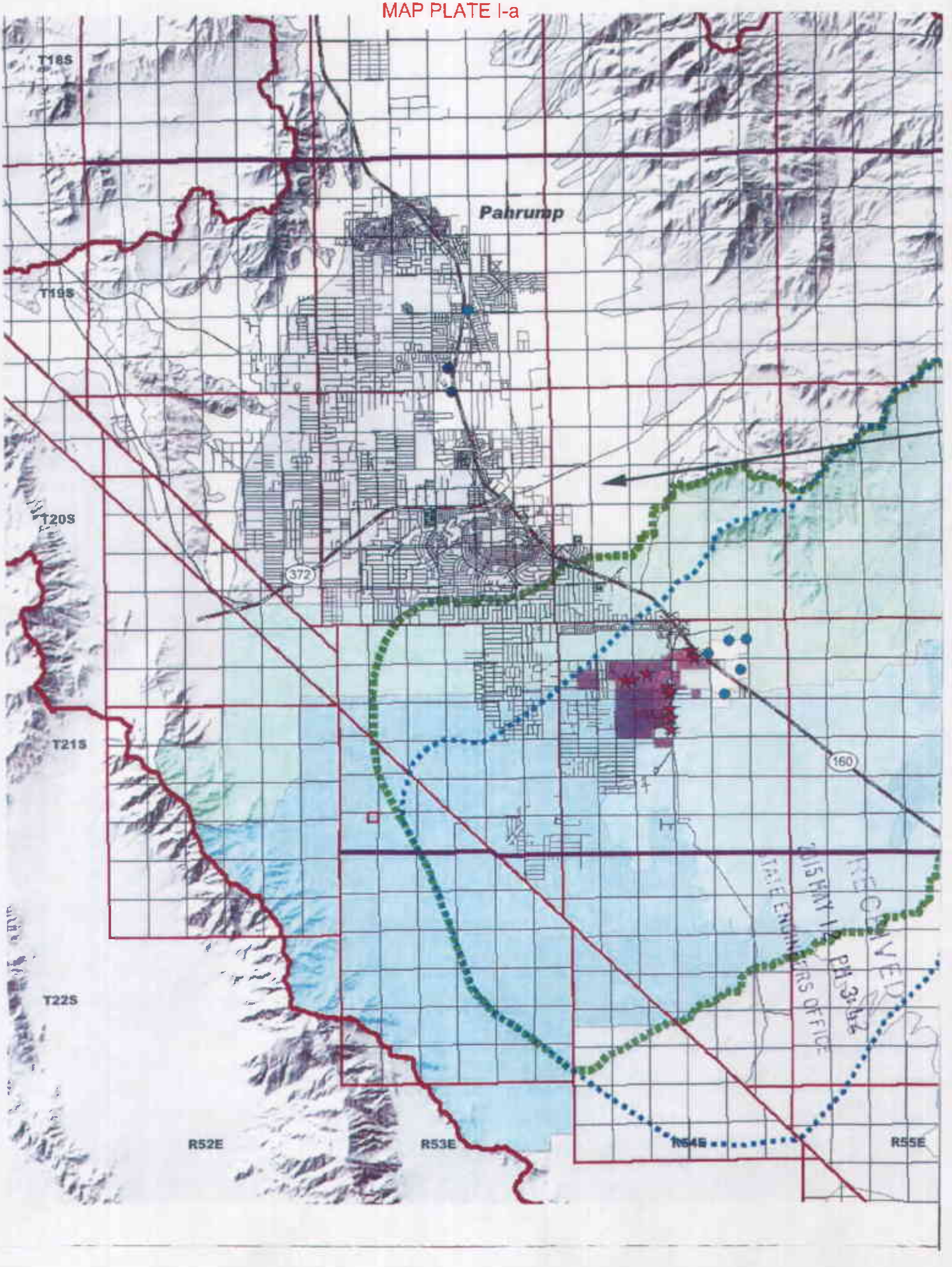
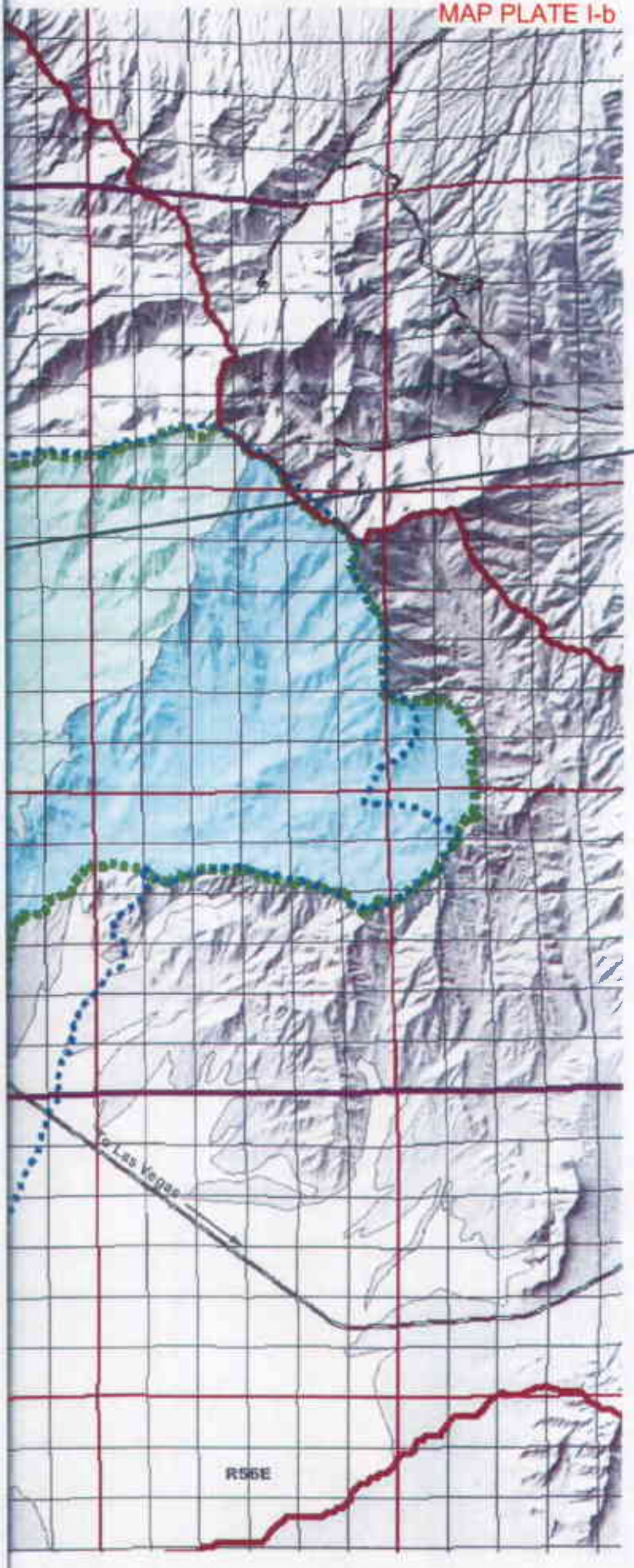
MAP PLATE I-a



MAP PLATE I-b



Location Map

N

1 inch equals 16000 feet

Legend

- Pahrump Utility Company Existing Wells
- Desert Utilities Inc. Existing Wells
- Desert Utilities Proposed Diversion Relocations
- Pahrump Utility Company Existing Service Area
- Desert Utilities Inc. Proposed Service Area
- Basin 162 Transfer Restrictions Boundary
- Pahrump Hydrologic Basin 162 Boundary
- Carpenter Creek Watershed
- Trout Creek Watershed
- DWR Alluvial Fan Rights Boundary
- Original Recharge Area Delineation
- Interpolated Manse Fan Delineation

LUMOS & ASSOCIATES

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SURVEYING / GIS
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PAHRUMP UTILITY COMPANY

HYDROLOGIC SETTING
DESERT UTILITIES, INC. PROPOSED WATER DIVERSION RELOCATIONS

NYE COUNTY, NEVADA

PAHRUMP

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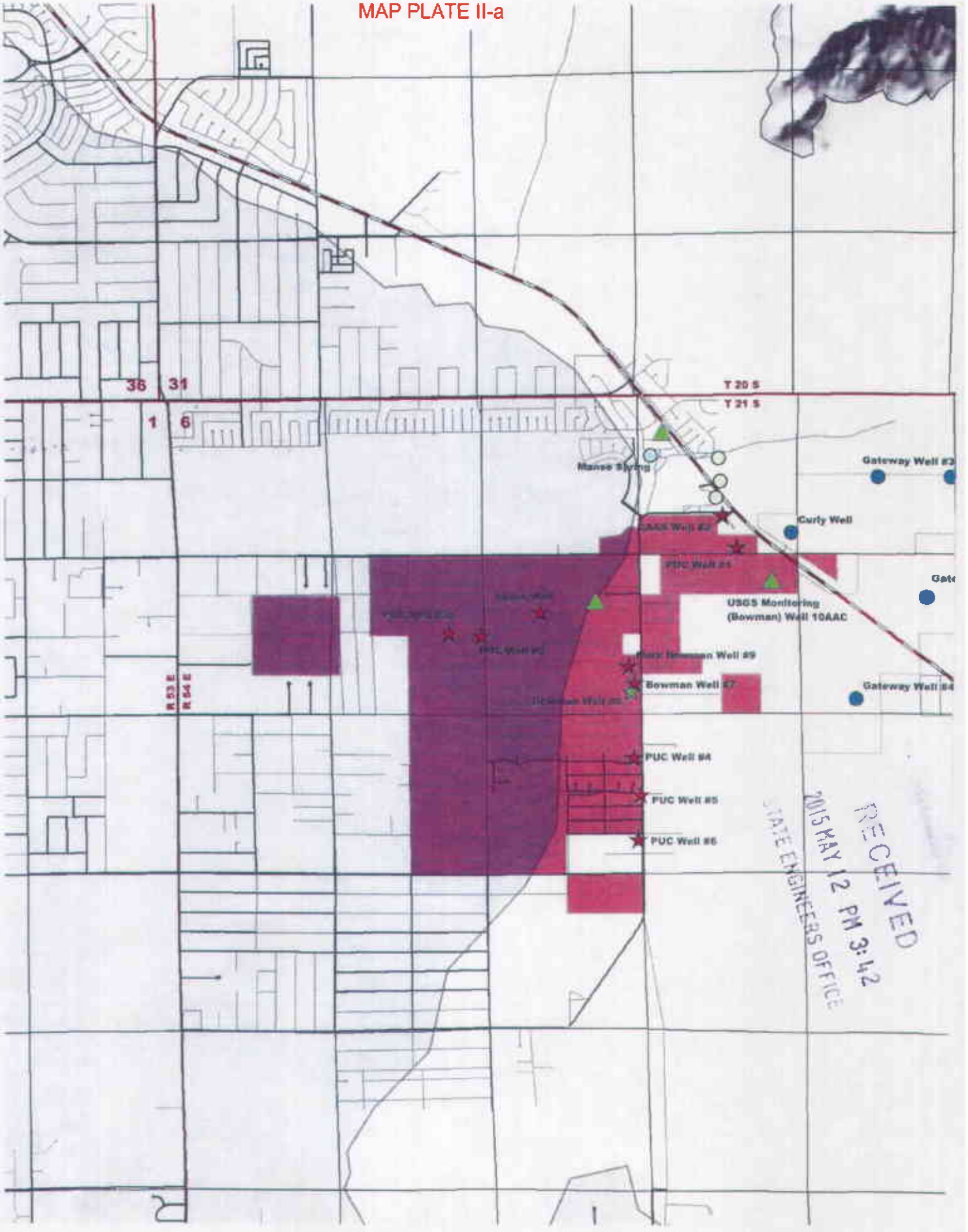
Figure 1

DATE:	September 2006
DRAWN BY:	GPC, JH
DESIGNED BY:	GPC, JA
CHECKED BY:	MH
JOB NO.:	6785.000

Pahrump_Utility_1.mxd

MAP PLATE II-a



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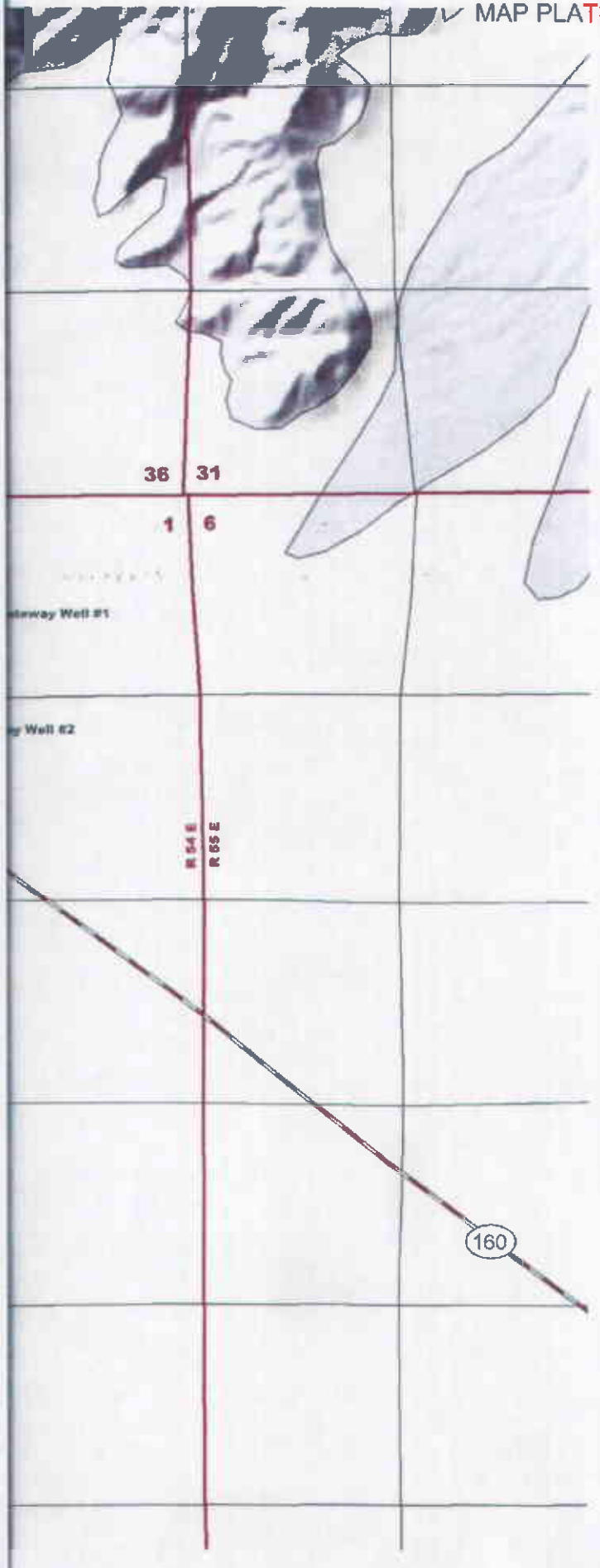
MAP PLATE II-b



N

0 4000 8000 Feet

1 inch equals 4000 feet

Legend

- Pahrump Utility Company Existing Wells
- Pahrump Utility Company / USGS Monitoring Well
- USGS Monitoring Wells
- Desert Utilities Inc. Existing Wells
- Desert Utilities Proposed Diversion Relocations
- Manse Spring
- Other Wells
- Pahrump Utility Company Existing Service Area
- Desert Utilities Inc. Proposed Service Area
- DWR Alluvial Fan Rights Boundary

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PAHRUMP UTILITY COMPANY

SITE PLAN
DESERT UTILITIES, INC. PROPOSED
WATER DIVERSION RELOCATIONS

NYE COUNTY

NEVADA

PAHRUMP

REV	DATE	DESCRIPTION	BY

RECEIVED

Figure 2

DATE:	September 2006
DRAWN BY:	GPC, JH
DESIGNED BY:	GPC, JA
CHECKED BY:	MH
JOB NO.:	6785.000

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Appendix B

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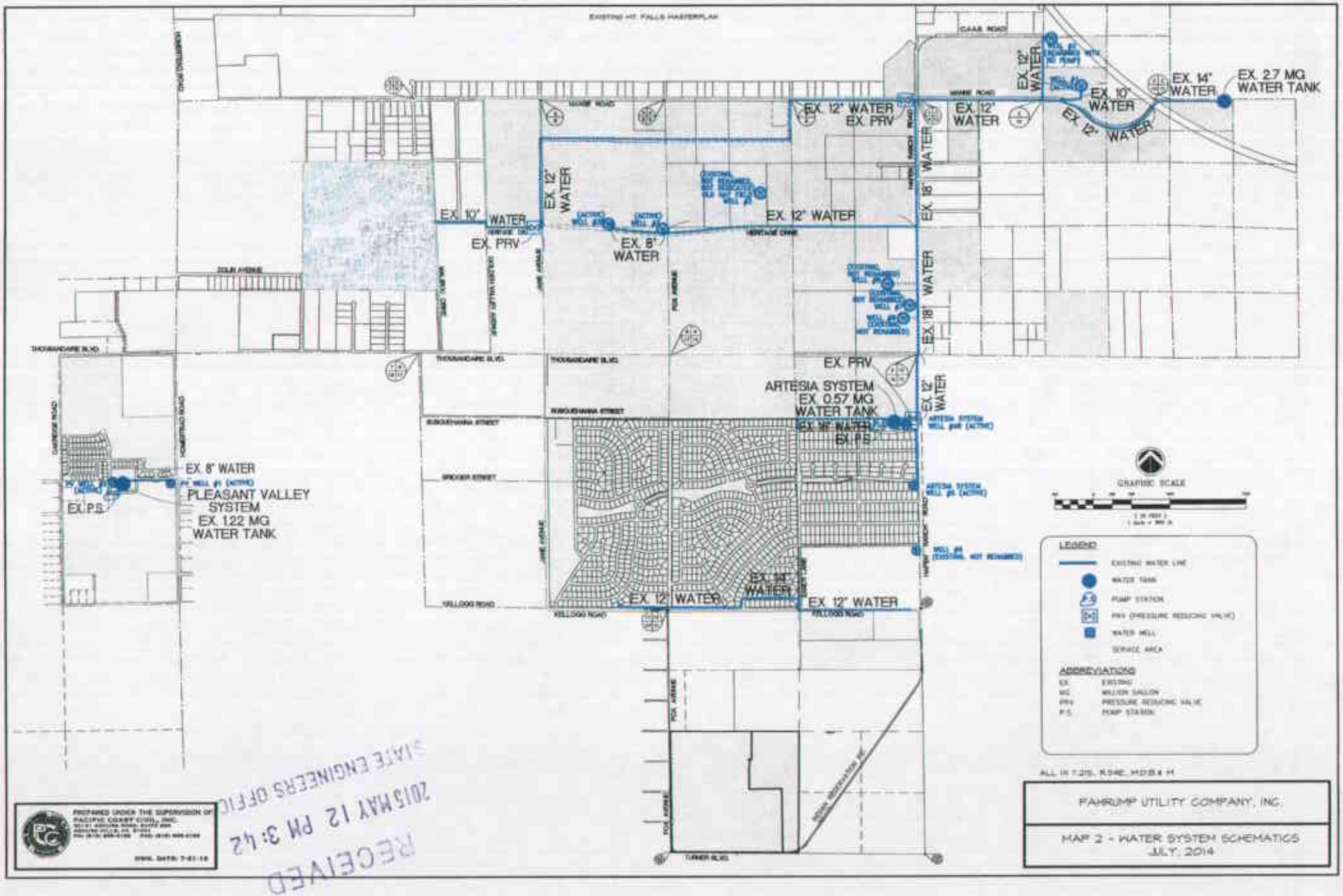
EXISTING MT. FALLS MASTERPLAN
EX. 12" WATER
EX. PRV
EX. 12" WATER
EX. 10" WATER
EX. 14" WATER
EX. 2.7 MG WATER TANK
EX. 12" WATER
EX. 10" WATER
EX. PRV
EX. 8" WATER
EX. 12" WATER
EX. 18" WATER
EX. 18" WATER
EX. PRV
ARTESIA SYSTEM
EX. 0.57 MG WATER TANK
EX. 16" WATER
EX. P.S.
EX. 12" WATER
EX. 8" WATER
PLEASANT VALLEY SYSTEM
EX. 1.22 MG WATER TANK
EX. P.S.
EX. 14" WATER
EX. 12" WATER
EX. 12" WATER
GRAPHIC SCALE
LEGEND
EXISTING WATER LINE
WATER TANK
PUMP STATION
PRV (PRESSURE REDUCING VALVE)
WATER WELL
SERVICE AREA
ABBREVIATIONS
EX. EXISTING
MG MILLION GALLON
PRV PRESSURE REDUCING VALVE
P.S. PUMP STATION
ALL IN T.21S., R.54E., M.D.B.& M.
PAHRUMP UTILITY COMPANY, INC.
MAP 2 - WATER SYSTEM SCHEMATICS
JULY, 2014
PREPARED UNDER THE SUPERVISION OF PACIFIC COAST CIVIL, INC.
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Appendix C

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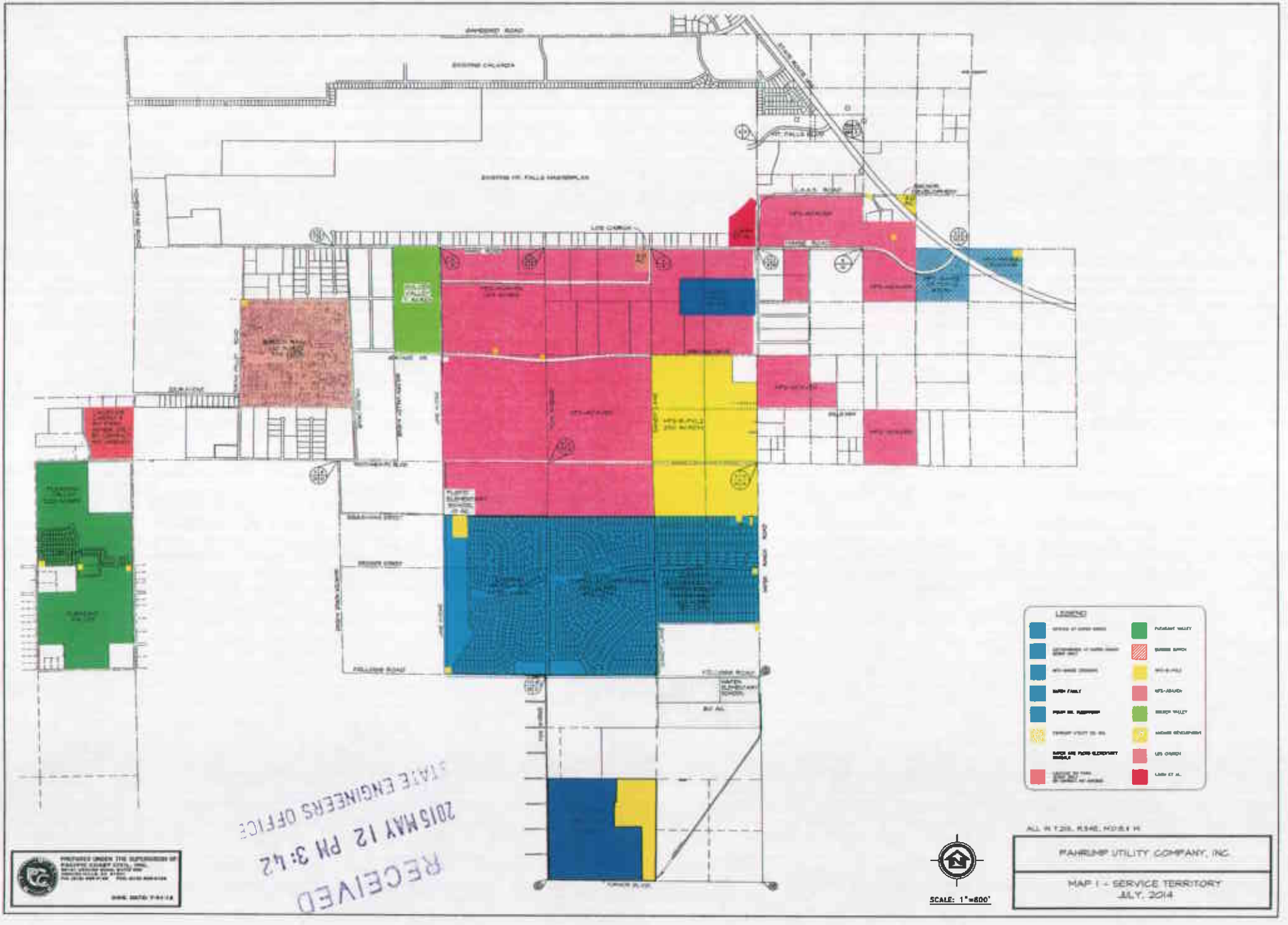

ALL IN T.20S., R.54E., M.D.B.& M.

FAIRBANKS UTILITY COMPANY, INC.

MAP 1 - SERVICE TERRITORY
JULY, 2014

Appendix D

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PAHRUMP UTILITY COMPANY INC.
WATER CUSTOMER BASE
CURRENT AND FUTURE

As of June 30, 2012

Subdivision/Customer	Current Service	Annexed No Service	Not Annexed	EDU's Existing Water at 6/30/12	Expected EDU Additions	Total EDU Expected
PROJECTS WITH CURRENT SERVICE						
Artesia at Hafen Ranch-Residential	X			386	488	874
Artesia at Hafen Ranch-Parks	X			61		61
Artesia Owners Assoc. Clubhouse	X			1		1
Artesia Commercial		X		0	64	64
Hafen Elem School	X			33		33
Hafen Elem School Landscaping	X			27		27
Floyd Elem School	X			32		32
Floyd Elem School Landscaping	X			29		29
Pleasant Valley -Residential	X			47	50	97
Pleasant Valley - Parks	X			31		31
Burson Ranch -Residential	X			31	555	586
Burson Ranch - Parks	X			80	134	214
LDS Church				13		13
Sub-Total				771	1291	2062
PROJECTS ANNEXED-PAID CAPACITY FEES-NO SERVICE						
MFS		X			4,422	4,422
Pleasant Valley - D		X			291	291
Pleasant Valley Landscape - D		X			16	16
Foundation Holdings		X			494	494
Golden Valley		X			250	250
Golden Valley Landscaping		X			91	91
Pleasant Valley - N		X			412	412
Pleasant Valley Landscape - N		X			50	50
Pleasant Valley - M			X		138	138
Sub-Total					6,164	6,164
TOTAL COMMITMENTS FOR PAID SERVICE				771	7,455	8,225.54
PROJECTS ANNEXED-NO CAPACITY FEE PAID-NO CURRENT SERVICE - Estimated EDU						
MFS Landscaping		X			500	500
MFS Commercial		X			800	800
B-PVL2		X			1,000	1,000
B-PVL2 Landscaping		X			150	150
Anchor/Goff Commercial		X			12	12
Hafen 103 Commercial		X			315	315
Hafen 103 Residential		X			80	80
NCSD Hafen Middle & High Schools		X			267	267
NCSD Hafen Middle & High Schools Landsc		X			365	365
Indian Road Subdivision		X			448	448
Indian Road Landscaping		X			34	34
Sub-Total					3,971	3,971
TOTAL EXPECTED COMMITMENTS FOR CURRENT SERVICE AREA				771	11,426	12,197

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CURRENT ACTIVE CUSTOMER EDU COUNTS

EXISTING CUSTOMERS-RESIDENTIAL	464
EXISTING EDU-COMMERCIAL & LANDSCAPING ONLY	307
TOTAL	771